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Haystack Pointing System: Peripheral Programs

J. D. Drinan
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MASSACHUSETTS INSTITUTE OF TECHNOLOGY

LINCOLN LABORATORY

HAYSTACK POINTING SYSTEM: PERIPHERAL PROGRAMS

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Group 62

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ABSTRACT

A set of eight non-real-time service programs was written in support of the Haystack Pointing System to facilitate system maintenance and updating. Peripheral functions afforded by this set of programs include: (1) format conversion and remote printing facility of the SPURT assembler printer outputs 210, 211 and 212; (2) magnetic tape dumping; (3) "effective" punched card input to SPURT assembler; (4) Cal Comp plotting of system output; (5) punched card equivalents of Common Storage Allocation Tape; (6) automatic program loading with bootstrap tape generation facilities; (7) magnetic tape duplication; and (8) automatic updating of system tapes.

Accepted for the Air Force
Franklin C. Hudson
Chief, Lincoln Laboratory Office

HAYSTACK POINTING SYSTEM: PERIPHERAL PROGRAMS

INTRODUCTION

Each of the programs described in this document was written with an eye toward automating, in so far as possible, the manifold "off-line" steps necessary in the creation, maintenance and evaluation of the Haystack Pointing System.

The write-ups have assumed a certain familiarity on the part of the reader with regard to system fundamentals, to the SPURT assembler and to the TOPS utility routine.

A brief abstract of each program as well as the name of each author is given below:

SPURT assembler outputs 210, 211 and 212 are format converted for printing by the IBM 1401 computer.

The contents of virtually any U-490 produced magnetic tape may be listed on the Haystack high-speed printer. A variety of user options is available.

This is a pre-assembler program which effectively enables the programmer to use the punched card medium as an input to the SPURT assembler.

Certain of the recorded outputs of the Haystack Pointing System can be presented in the form of Cal Comp plots.

The Common Storage symbol table maintained on cards is transposed onto flexo-tape.

The single Master Bootstrap System Tape as well as a map of allocated memory are produced under the direction of the user.

TAPECOPY A. A. Mathiasen Page 37

Most high density binary tapes can be duplicated.

UPDATER D. M. Hafford Page 38

Any system program can be added to, replaced or deleted from the particular master file tape to which it belongs.

LIST 210

INTRODUCTION

The List 210 program reads the 210, 211, or 212 Fieldata output of the SPURT assembler and makes up a BCD output for printing by an IBM 1401 computer or similar device.

INPUT

A. Tape Input

Record 1

Word	Upper	Lower
1	(not used)	00210 00211 00212
2 - 7	Name of program and programmer in Fieldata	
8	0	0
9	0	not used
10	0	32

Word 1 from this record tells the kind of output.

Record 2 through n

Word	Upper	Lower
1	ℓ	$26\ell + 1$
2 - 26	Fieldata information	
27	Spacing control	
28 - 52	Fieldata information	
53	Spacing control	
.....	.....	
$26(\ell - 1) + 2$ to 26ℓ	Fieldata information	
$26\ell + 1$	Spacing control	

ℓ stands for the number of output printer lines in this record. Each line consists of 125 Fieldata characters.

Record n + 1 (last record)

Word	Upper	Lower
1	12231	12413
2	11322	22505

Record n + 1 has the Fieldata characters for ENDOFDUMP.

1. The 210 Tape

In the 210 tape the first line (of Record 2) contains the legend SPURT OUTPUT NO. 210 enclosed in apostrophes. (In the translation, these are interpreted as periods.)

The second line is a succession of apostrophes and is skipped by the program.

The third line contains the name of the program and usually the programmer and date.

The fourth line is the legend "NO. OF INSTRUCTIONS m" followed by lines of the form "n_1 thru n_2" until a line exactly like line 1 is encountered.

The next line after this is a succession of apostrophes.

The line after this is like the third line above (program name, programmer, and date).

The next line is the column headings

- CARDS LL CD LABEL TA STATEMENT LOC F JKB Y NOTES.

Following this are the successive lines of program listing.

2. The 211 or 212 Tape

Both the 211 and 212 tapes contain a listing of labels and their associated addresses. In the former, these are alphabetically ordered; in the latter, numerically ordered.

The first line (of Record 2) is the legend "SPURT OUTPUT NO. 21Y" where Y is 1 or 2, enclosed in apostrophes.

The second line is a succession of apostrophes.

The third line is the program name, programmer and date.

The fourth line contains the column headings - LABEL LOC LABEL LOC LABEL LOC.

B. Jump Buttons

1. Key 1

If Key 1 is depressed at the completion of translation of a logical file, the Fieldata input type and the BCD output tape will be rewound, and the program will stop. Starting after this will cause the program to reinitialize.

2. Key 2

If Key 2 is depressed at the completion of translation of a logical file, the program will continue with the next logical file of the input.

3. Key 3

If Key 3 is depressed at the completion of translation of a logical file, the Fieldata input tape will be rewound, the BCD output tape will be left where it is, and the program will stop. Upon starting, it will translate the next logical file of the Fieldata input tape (which presumably will be a newly mounted tape).

OUTPUT

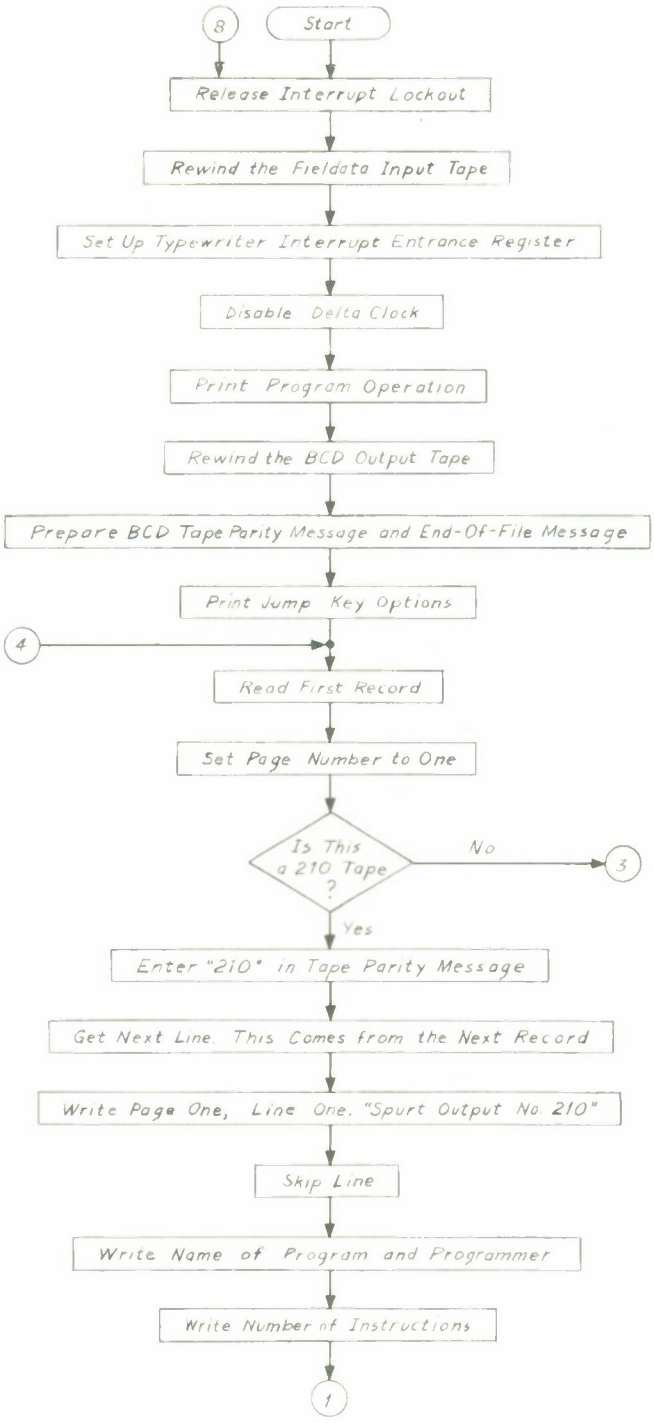
The output will be a magnetic tape with the BCD equivalent of the Fieldata 210, 211, or 212 listing. There will, however, be added a heading including page number on each new page. Examples of such a 210, 211, or 212 output listing will be found in the Appendix.

The operation of the keys is printed on the console typewriter. Also printed is the current program being translated and the kind of listing.

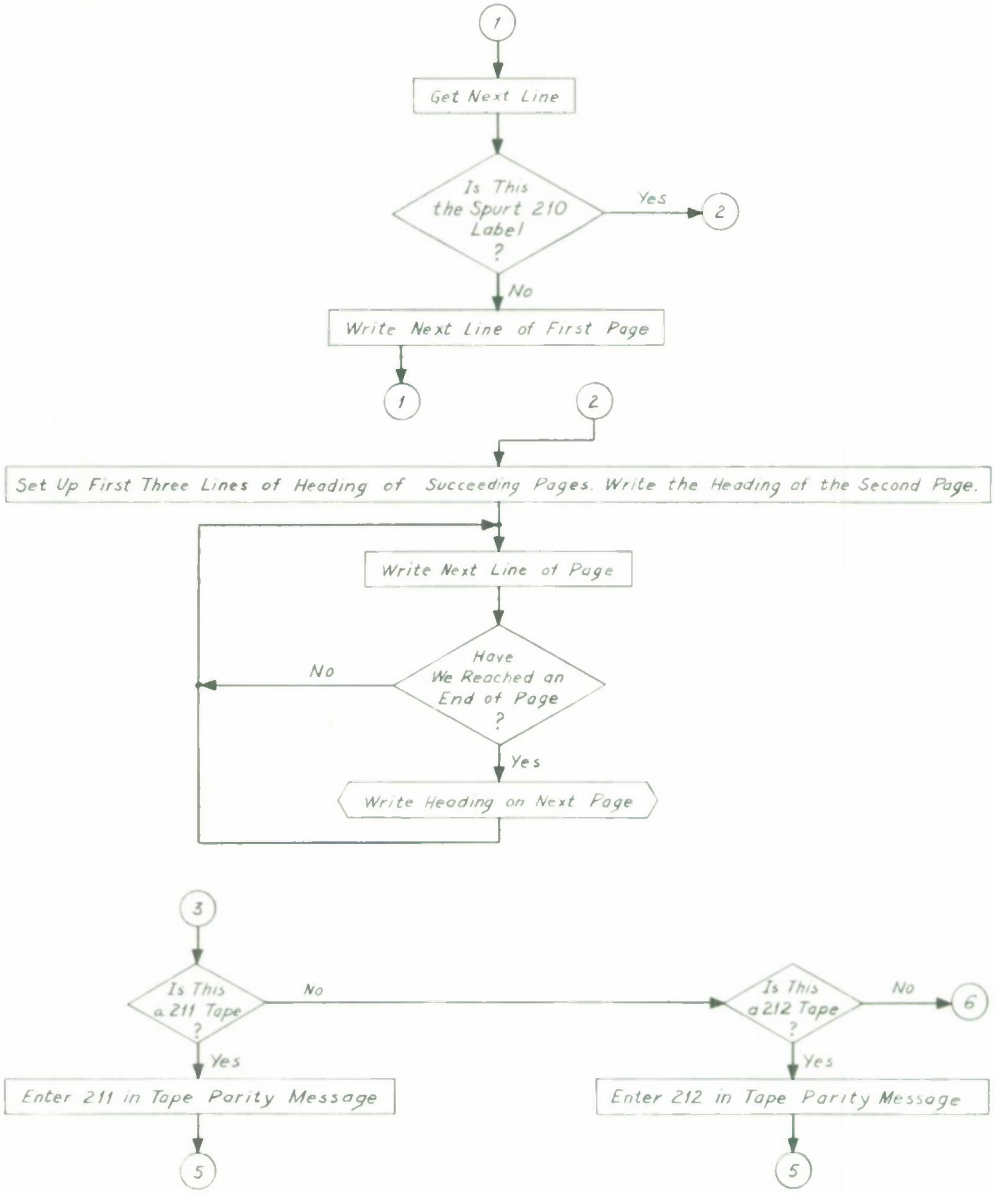
OPERATION

The flow diagram of the program details the operation.

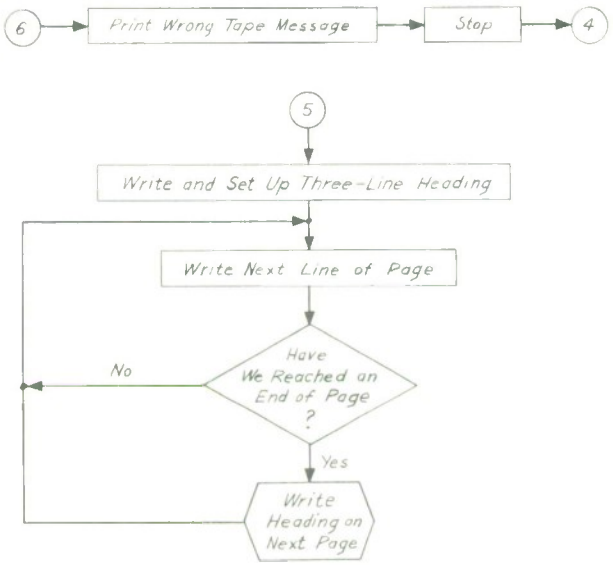
LIST 210 PROGRAM



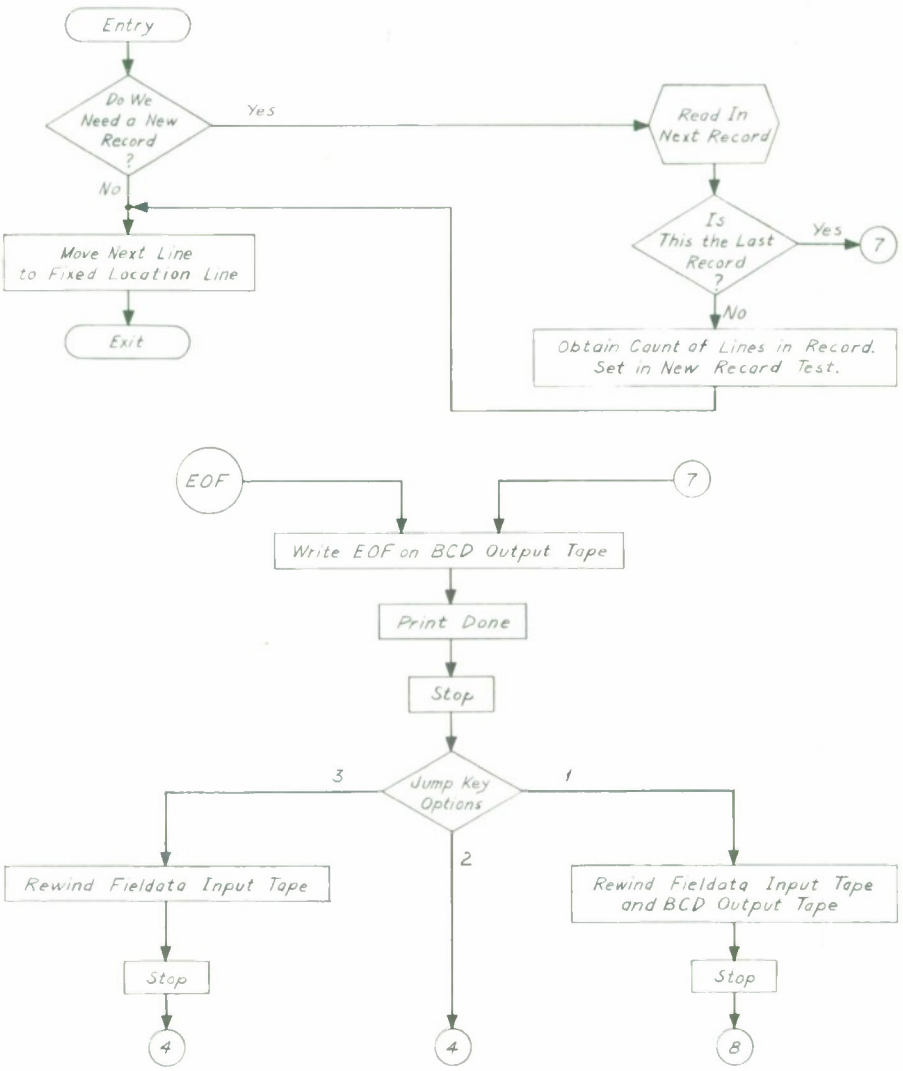
3-62-4243


1
Get Next Line
Is This the Spurt 210 Label ?
Yes
2
No
Write Next Line of First Page
1
2
Set Up First Three Lines of Heading of Succeeding Pages. Write the Heading of the Second Page.
Write Next Line of Page
Have We Reached an End of Page ?
No
Yes
Write Heading on Next Page
3
Is This a 211 Tape ?
No
Is This a 212 Tape ?
No
6
Yes
Yes
Enter 211 in Tape Parity Message
Enter 212 in Tape Parity Message
5
5

3-62-4242

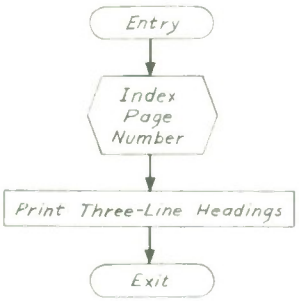

6
Print Wrong Tape Message
Stop
4
5
Write and Set Up Three-Line Heading
Write Next Line of Page
Have We Reached an End of Page ?
No
Yes
Write Heading on Next Page

GET ON-LINE ROUTINE

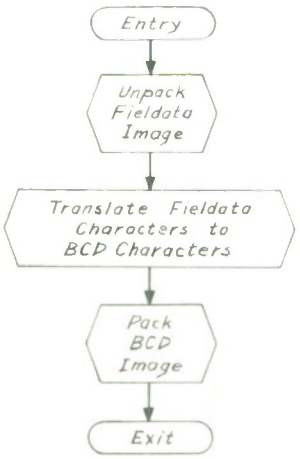


3-62-4240

PAGE HEADING ROUTINE

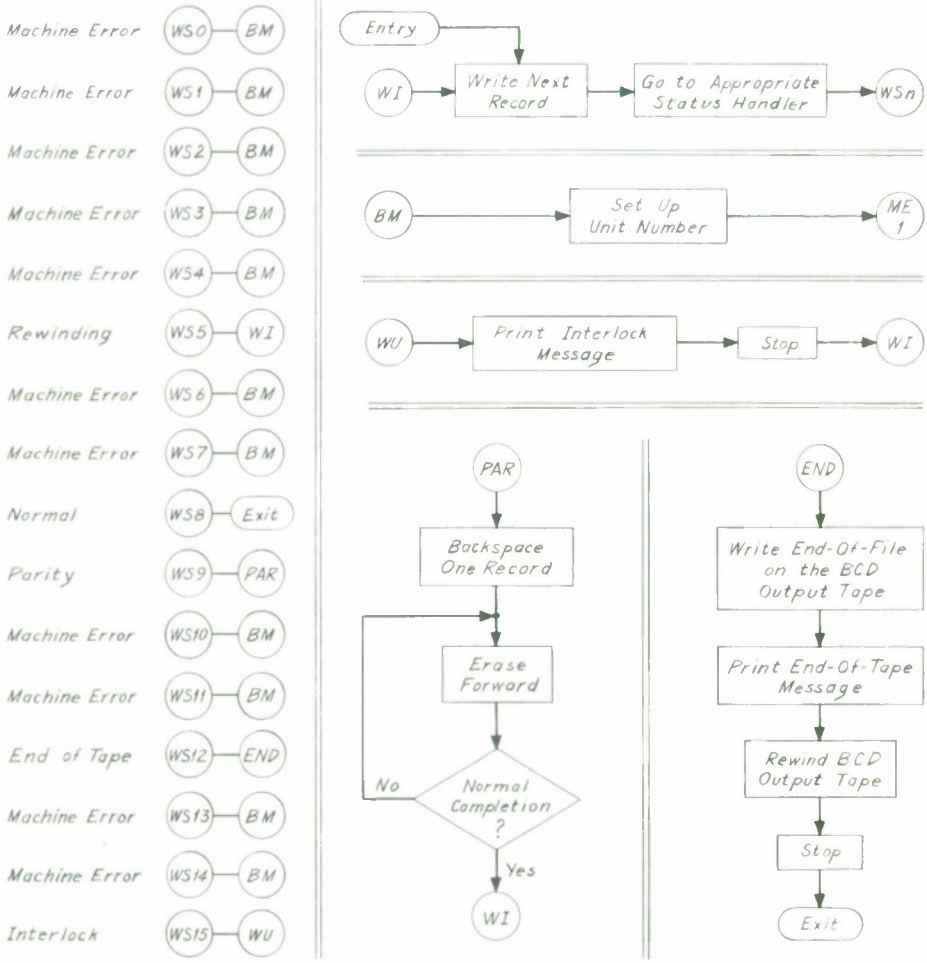


UNDERSTAND ROUTINE

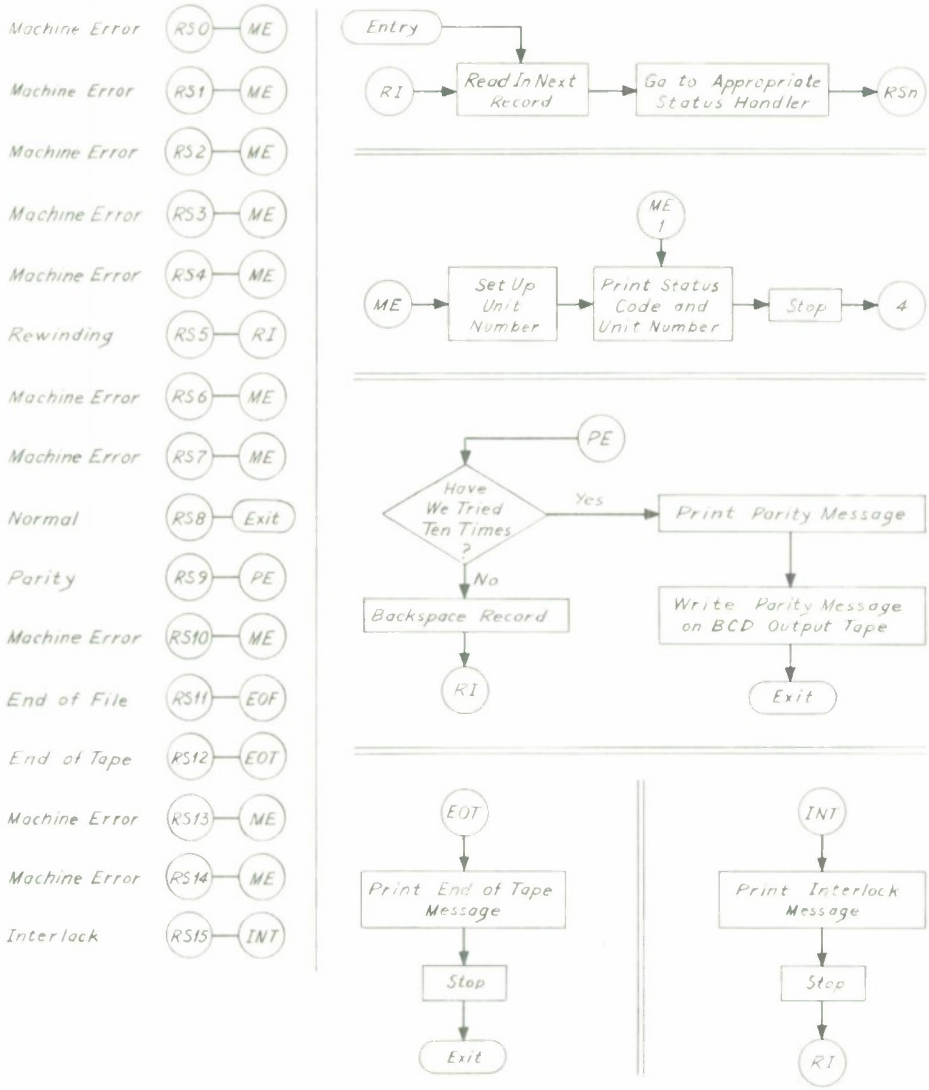


3-62-4239

WRITE ROUTINE



READ ROUTINE



MAGNETIC TAPE DUMP PROGRAM

GENERAL

A Univac 490 program called Magnetic Tape Dump Program has been written to list the contents of a magnetic tape on the Haystack high-speed printer. The program has the ability to process a tape in high or low density with an even or odd parity, and in BCD, FD, or octal format. It also has the capability of skipping files or records, of dumping files or records, and of rewinding a tape.

Input is from both magnetic tape and the on-line console typewriter. The magnetic tape may be mounted on any one of the four tape drives (A, B, C or D). Tape drive, density, parity, format, file and record skipping, file and record dumping, and rewinding are specified via the console.

Selected contents of the magnetic tape are printed on the high-speed printer.

OPERATION

Mount the tape to be processed on one of the tape drives. The Magnetic Tape Dump Program is included as one of the utility programs on the SPURT System Tape. To call the program, type (via TOPS):

LS □ MTDMP

The Magnetic Tape Dump is also on a separate "321" magnetic tape labeled "MGTAPEDUMP." To load the program, mount this tape on one of the tape servos (S_N) where N = servo where the tape has been mounted, then type:

LD □ Sn □ 321 □ 10000 ⟨s⟩
PS □ 10000 ⟨s⟩

When the program has been called by either method, the following message will appear on the on-line console:

"STANDARD (A, B, C, OR D) OR NO (N)"

Selecting one of the standard A, B, C, or D tape units followed by a stop code ⟨s⟩ will initiate a listing in octal, high density of many files. To limit the output, the program has to be stopped manually by depressing the step-operate switch in

the operate position. If the program has been stopped manually, clear the printer channel before continuing with other tape dumps.

Selecting "N" (NO) followed by a stop code "⟨S⟩" types an output of requests: "TAPE-DENSITY-PARITY-FORMAT-SKREC-DPREC-DPFILE-REW." Answers are entered below the line of requests. The program spaces to allow the answers to be directly under the appropriate request. Answers to each request are as follows:

TAPE → A, B, C, or D (Uniservo 0, 1, 2, or 3, respectively)
DENSITY → H or L (High or Low)
PARITY → E or O (Even or Odd)*
FORMAT → F, B, or D (Field Data, BCD, or Octal)
SKFILE → Number of files to be skipped before dumping.†
SKREC → Number of records to be skipped before dumping.†
DPFILE → Number of files to dumped.†
DPREC → Number of records to be dumped.†
REW (REWIND) → Y or N (Yes or No)

During typing of answers if a mistake is made, a carriage return will initiate the output of requests anew.

The following are examples of typical requests:

EXAMPLE 1

STANDARD (A, B, C or D) or NO (N)
N ⟨S⟩
TAPE-DENSITY-PARITY-FORMAT-SKFILE-SKREC-DPFILE-DPREC-REW
A H E B 001 000 000 010 Y

In response to this request, the program will rewind tape, skip one file, dump ten records (from the second file) of Tape A, in BCD high density, even parity.

*Ability to select parity has been included for special cases. Normally, BCD and Fieldata are even parity and octal (binary) is odd.

†Answer must have 3 decimal digits; for no action, answer 000.

EXAMPLE 2

STANDARD (A, B, C or D) or NO (N)

N ⟨S⟩

TAPE-DENSITY-PARITY-FORMAT-SKFILE-SKREC-DPFILE-DPREC-REW

D L E F 000 000 003 009 N

In response to this request, the program dumps first three files and nine records from the fourth file. From Tape D, in Fieldata, low density, even parity.

EXAMPLE 3

STANDARD (A, B, C or D) or NO (N)

B ⟨S⟩

In response to this request, the program dumps the first 511 files from Tape B, in octal, high density, odd parity.

MAKEA301TP

INTRODUCTION

A U-490 program is available which permits U-490 users to have their program manuscripts transcribed directly onto IBM cards by the Lincoln Laboratory card room facility in a format to be described below. The resulting card deck is loaded onto magnetic tape (see 1401 Procedures below for details) by the IBM 1401 off-line facility. The resulting BCD magnetic tape, then, is the input to the program being described, whose output is a SPURT 301 Tape which becomes immediately available for compilation by SPURT.

CARD FORMAT

A. Label Field

Columns 1 through 10 of the 80-column card will contain the label (if any) associated with this line of SPURT coding.

B. Continuation Column

Column 11 has been reserved for possible continuation purposes. Leave it blank.

C. Operator/Operator + V_o Field

Columns 12 through 21 must contain an operator beginning in column 12. The operator may stand alone in this field or it may be accompanied by the V_o operand if the V_o operand is either the "r" (Register) or "e" (Expression) type of operand. When both appear in this field, they are separated by exactly one blank.

D. Operand/Comentary Field

Columns 22 through 80 comprise this field. Any remaining operands (including V_o) to be included in this line must begin in column 22. The point separator in this field is the comma (,). The commentary field for those operators which may have notation (see Special Operators) is defined as beginning in the column following the first blank in columns 22 to 80. Commas (point separators in the operand field) may be freely used as such in the commentary field.

PROGRAM FORMAT

The first card of every program must have the program label in the label field. Additionally the symbol, PROGRAM, appears in the operator field while the programmer's name and the date occupy the operand/commentary field separated by the point separator (,). A typical first card might appear:

SORTER PROGRAM JSMITH, 6/10/65

No end card should be present. The end of file signals the end of program.

SPECIAL OPERATORS

A. DEC

This pseudo operation (not present in SPURT) permits the entry of fixed-point mixed numbers into the SPURT program by means of a pre-assembly conversion of the mixed number to its octal integer equivalent. The Format:

Operator Field	Operand Field
DEC	$\pm$ III. FFFBDD

CAUTION! The sum of the decimal places represented by the I's and F's must be less than or equal to 9 and the number considered as a decimal integer (decimal point removed) must be within the range of the 29-bit word size. ($536870912 > |N|$)

The binary point position is indicated by the non-negative decimal integer(s) following the B in the format above. A "B" of zero connotes an integer. Depending on the number being entered, the number of I's or F's may be zero or non-zero, the decimal point may or may not be present, but the B must appear.

B. TYPET

The V_o operand starts in column 22 and extends to the right in blocks of 5 columns until the rightmost non-blank column is found. No commentary is permitted. Commas are permitted in the V_o operand. NOTE: The vertical bar (|) is entered as a dollar sigh ($)

C. FD

The count for the FD pseudo-op must appear as the V_o operand in the OPERATOR FIELD, i.e., columns 15 or 15 and 16 must contain a decimal

count. The D (for decimal) must be present when the count is greater than 7.

The text starts in column 22 and no commentary is allowed. A count of zero results in a search for the rightmost non-blank character which determines how many columns are presented to SPURT for assembly.

D. FORM-TEXT

Because of the nature of this macro-type operation, no commas are permitted in the text portion of the operand field.

E. Constants

Upper Half - Lower Half

For this arrangement, the upper half begins in column 12 and the lower half begins in column 22. No point separator is used.

Whole Word

Any whole word entry which, because of a preceding minus sign or a trailing D (decimal indicator), does not fit entirely in the operator field must be entered by the "upper half - lower half" method for octal integers and by the DEC pseudo op for decimal integers.

1401 PROCEDURES

The card-to-tape procedure at the 1401 is normal except that the card-to-tape load program must be the special "80-column loader" written especially for this application.

SUGGESTION: To minimize the possibility of trouble at Haystack, it is probably worthwhile loading a given program twice, creating a second back-up file on the same BCD tape.

Print the tape and examine columns 81 to 84 of the listing. If zeros are present in these columns, the wrong loader has been used.

U-490 PROCEDURES

The program that converts the BCD tape to the SPURT 301 tape is called MAKEA301TP. It is currently a utility program on the SPURT tape.

Mount the SPURT tape on logical 0 (A).

Mount the BCD tape to be converted on logical 2 (C).

Mount a spare (output 301 tape) on logical 3 (D).

Under TOPS control

Type in

LS □ MK 301 (carriage return)

PLOTTER (CAL COMP)

INTRODUCTION

The Haystack Plotter Program was written to give a graphical representation of the recorded output from the Haystack Pointing System.

The program was written in Fortran to operate on the IBM 7094. The output of the program is a tape to be used as an input to an IBM 1401 Computer Program. The output of the IBM 1401 Computer Program is plotted on a Cal Comp Plotter. The plot size, its scaling, over printing etc., are controlled by parameter cards used by the Haystack Plotter Program.

INPUT

A magnetic tape produced by the Haystack Printout Program is the primary input to the Haystack Plotter Program. Control cards are used by the Plotter Program, to control the size of the plot, the scaling, etc.

OUTPUT

A plot from the Cal Comp Plotter is the final output using the Haystack Plotter Program. The plot is not an output directly from the Haystack Plotter Program, but rather an output from an IBM 1401 Computer Program that utilizes as input a magnetic tape generated by the Haystack Plotter Program on the IBM 7094.

OPERATION

The Haystack Plotter Program was written in Fortran to be compiled and executed on the IBM 7094 computer.

An IBM compatible BCD magnetic tape, generated by the Printout program from the Haystack System Recording Tape, is one of the inputs to the Haystack Plotter Program, the other input is from cards, as follows:

INPUT CARDS

Card 1	Col. 1 and 2	Start Hour
	Col. 4 and 5	Start Minute
	Col. 7 and 8	Start Second
	Col. 12 and 13	End Hour
	Col. 15 and 16	End Minute
	Col. 18 and 19	End Second
Card	Col. 1-3	X-Axis (for time, leave max and min points blank)
	Col. 6-13	Minimum Point (Floating Point)
	Col. 16-23	Maximum Point (Floating Point)
Card 3	Col. 1-3	Y-Axis
	Col. 6-13	Minimum Point (Floating Point)
	Col. 16-23	Maximum Point (Floating Point)
Card 4	Col. 1	Ø = Solid Line Plot (Fixed Point) 1 = Broken Line Plot (Fixed Point)
	Col. 3-5	Number Points per frame (Fixed Point)
	Col. 7-10	No. Inches in X-axis (Floating Point) (Leave Blank for Time)
	Col. 12-15	No. Inches in Y-Axis (Floating Point)
Card 5	Col. 1	1 = Completed Request 2 = Over Plot (No new scaling) 3 = Additional Plot same File 4 = Plot From Next File

The selections of X-Axis versus Y-Axis are:

X-Axis		Y-Axis
TIM (TIME)	vs.	AAZ (Actual Azimuth)
TIM (TIME)	vs.	AEL (Actual Elevation)
TIM (TIME)	vs.	CAZ (Command Azimuth)
TIM (TIME)	vs.	CEL (Command Elevation)
AAZ	vs.	AEL
AAZ	vs.	CAZ
AAZ	vs.	CEL
AEL	vs.	CAZ
AEL	vs.	CEL
CAZ	vs.	CEL

These are the only combinations available in the program.

Each file of each input tape has a title associated with it. The title along with the start and end times are written on the output tape to be plotted. Following these are the axes, the axes scaling, and the data converted from BCD to plotter units to make the curve.

Plotter Program requirements:

System; FMS
Input Tape; B6 556 LPI
Output Tape; A6 800 LPI
Control Cards must follow the program deck

A sample listing of an Input Tape, and a plot from the Cal Comp Plotter will be found in the following pages.

ACQUI ON LES II WEDNESDAY OCTOBER 6, 1965 SATELLITE SYSTM

HH MM SS	RA(DEG)	DEC(DEG)	DISTANCE	DISTDOT	RADOT	AZIM	ELEV	CAZIM	TRUERANGE	RA(HMS)	DEC(DMS)
18 29 14	175.8643	9.2440	1.54481578	-0.77944	6.3109443	243.3681	-1.8594	243.3681	1.2100787	11 43 27.44	9 14 38.3

SRA	SDEC	CRANGE	RANGEDOT	DECDOT	SAZIM	SELEV	CELEV	SIDERTIME
175.8643	9.2440	257346	-2.84574	3.7797949	243.3681	-1.8594	0.6579	221.0220

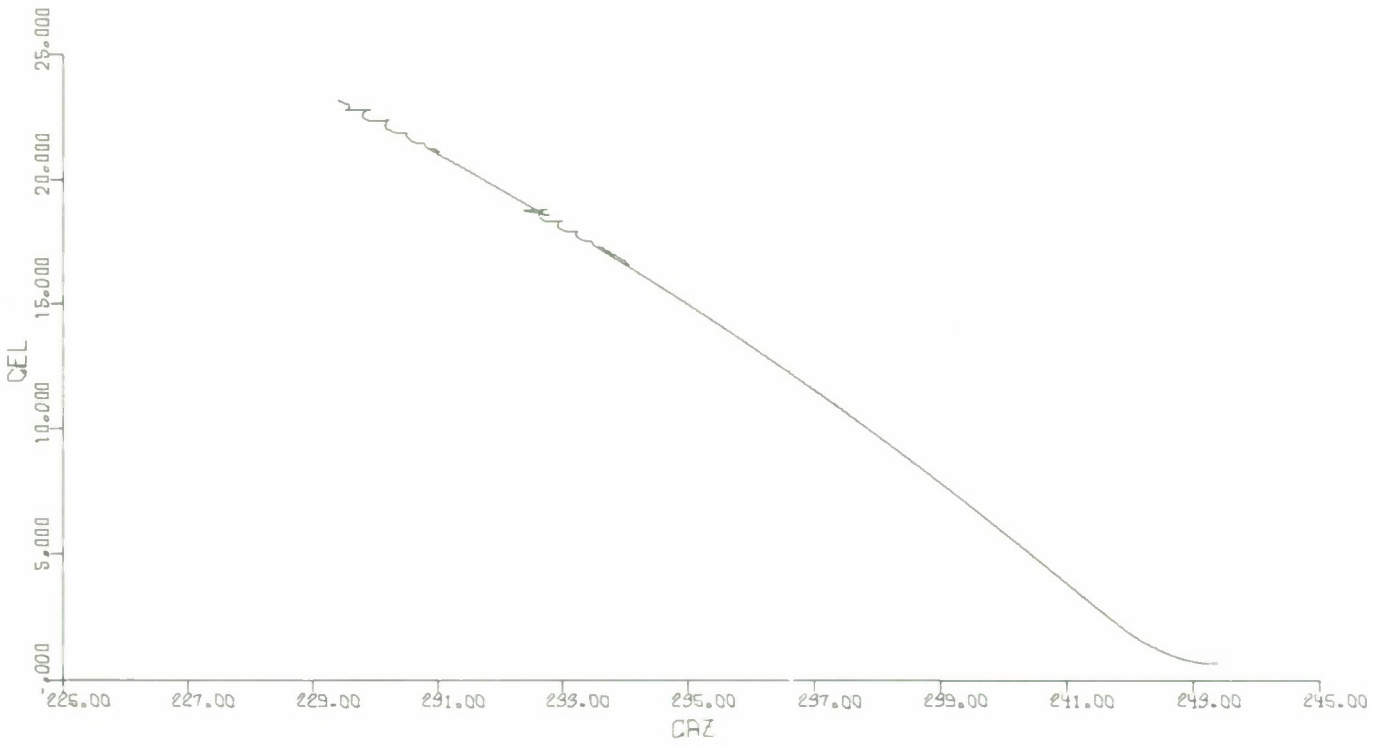
TIME	INCOMING	INCOMING	COMMAND	COMMAND	RECVD R/A			RECVD DECLN			COMND R/A			COMND DECLN			COMND DOPLR	MODES
SECS	AZIMUTH	ELEVATION	AZIMUTH	ELEVATION	HH	MM	SS.SS	DDD	MM	SS.S	HH	MM	SS.SS	DDD	MM	SS.S	CYCLES/SEC.	ABCDE
0.000	328.1190	359.9966	243.3685	0.6578	8	58	48. 5	65	52	12.4	11	47	30.92	10	21	43.2	272695	
0.080	328.1184	359.9973	243.3671	0.6578	8	58	48.46	65	52	11.0	11	47	31.19	10	21	40.6	272696	
0.160	328.1190	359.9973	243.3664	0.6578	8	58	48.44	65	52	12.8	11	47	31.36	10	21	39.4	272696	
0.240	328.1190	359.9973	243.3650	0.6578	8	58	48.52	65	52	12.8	11	47	31.63	10	21	36.8	272697	
0.320	328.1190	359.9973	243.3643	0.6585	8	58	48.60	65	52	12.9	11	47	31.87	10	21	36.7	272698	
0.400	328.1190	359.9973	243.3630	0.6585	8	58	48.68	65	52	12.8	11	47	32.15	10	21	34.1	272698	
0.480	328.1197	359.9973	243.3623	0.6585	8	58	48.67	65	52	14.7	11	47	32.32	10	21	32.9	272699	
0.560	328.1190	359.9986	243.3616	0.6585	8	58	49.30	65	52	13.7	11	47	32.50	10	21	31.6	272700	
0.640	328.1197	359.9973	243.3602	0.6585	8	58	48.83	65	52	14.7	11	47	32.77	10	21	29.1	272700	
0.720	328.1184	359.9973	243.3595	0.6585	8	58	49.10	65	52	11.0	11	47	32.94	10	21	27.8	272701	
0.800	328.1190	359.9979	243.3582	0.6585	8	58	49.31	65	52	13.3	11	47	33.21	10	21	25.3	272701	
0.880	328.1190	359.9973	243.3575	0.6592	8	58	49.16	65	52	12.8	11	47	33.45	10	21	25.1	272702	
0.960	328.1190	359.9979	243.3568	0.6592	8	58	49.47	65	52	13.3	11	47	33.63	10	21	23.8	272703	
1.040	328.1190	359.9966	243.3554	0.6592	8	58	49. 9	65	52	12.4	11	47	33.90	10	21	21.3	272703	
1.120	328.1190	359.9966	243.3547	0.6592	8	58	49.17	65	52	12.4	11	47	34. 8	10	21	20.0	272704	
1.200	328.1190	359.9966	243.3533	0.6592	8	58	49.25	65	52	12.4	11	47	34.35	10	21	17.5	272704	
1.280	328.1184	359.9973	243.3527	0.6592	8	58	49.66	65	52	11.0	11	47	34.52	10	21	16.2	272705	
1.360	328.1190	359.9966	243.3520	0.6599	8	58	49.41	65	52	12.4	11	47	34.76	10	21	16.0	272706	
1.440	328.1190	359.9966	243.3506	0.6599	8	58	49.49	65	52	12.4	11	47	35. 4	10	21	13.5	272706	
1.520	328.1190	359.9973	243.3499	0.6599	8	58	49.80	65	52	12.9	11	47	35.21	10	21	12.2	272707	
1.600	328.1190	359.9973	243.3485	0.6599	8	58	49.88	65	52	12.8	11	47	35.48	10	21	9.7	272707	
1.680	328.1184	359.9973	243.3479	0.6599	8	58	50. 6	65	52	11.0	11	47	35.66	10	21	8.4	272708	
1.760	328.1190	359.9959	243.3472	0.6599	8	58	49.58	65	52	12.0	11	47	35.83	10	21	7.2	272709	
1.840	328.1197	359.9979	243.3458	0.6599	8	58	50.26	65	52	15.1	11	47	36.10	10	21	4.6	272709	
1.920	328.1197	359.9979	243.3451	0.6606	8	58	50.34	65	52	15.1	11	47	36.35	10	21	4.5	272710	

ACQUI ON LES II WEDNESDAY OCTOBER 6, 1965 SATELLITE SYSTM

HH MM SS	RA(DEG)	DEC(DEG)	DISTANCE	DISTDOT	RADOT	AZIM	ELEV	CAZIM	TRUERANGE	RA(HMS)	DEC(DMS)
18 29 16	175.9377	9.2873	1.54436326	-0.77811	6.3154240	243.3440	-1.8001	243.3440	1.2084258	11 43 45. 4	9 17 14.2

SRA	SDEC	CRANGE	RANGEDOT	DECDOT	SAZIM	SELEV	CELEV	SIDERTIME
175.9377	9.2873	256994	-2.84590	3.7807016	243.3440	-1.8001	0.6604	221.0303

TIME	INCOMING	INCOMING	COMMAND	COMMAND	RECVD R/A			RECVD DECLN			COMND R/A			COMND DECLN			COMND DOPLR	MODES
SECS	AZIMUTH	ELEVATION	AZIMUTH	ELEVATION	HH	MM	SS.SS	DDD	MM	SS.S	HH	MM	SS.SS	DDD	MM	SS.S	CYCLES/SEC.	ABCDE
0.000	328.1190	359.9973	243.3437	0.6606	8	59	11.89	65	52	54.6	11	47	42.83	10	22	43.3	272710	
0.080	328.1197	359.9966	243.3430	0.6606	8	59	11.64	65	52	55.9	11	47	43. 1	10	22	42.0	272711	
0.160	328.1190	359.9973	243.3424	0.6606	8	59	12. 5	65	52	54.5	11	47	43.18	10	22	40.8	272712	
0.240	328.1190	359.9979	243.3410	0.6606	8	59	12.35	65	52	55.0	11	47	43.45	10	22	38.2	272712	
0.320	328.1190	359.9973	243.3403	0.6612	8	59	12.21	65	52	54.5	11	47	43.70	10	22	38.1	272713	
0.400	328.1190	359.9973	243.3389	0.6612	8	59	12.29	65	52	54.5	11	47	43.97	10	22	35.5	272713	
0.480	328.1184	359.9979	243.3382	0.6612	8	59	12.69	65	52	53.2	11	47	44.14	10	22	34.3	272714	
0.560	328.1190	359.9973	243.3376	0.6612	8	59	12.45	65	52	54.5	11	47	44.32	10	22	33.0	272715	
0.640	328.1190	359.9973	243.3362	0.6612	8	59	12.53	65	52	54.5	11	47	44.59	10	22	30.5	272715	
0.720	328.1190	359.9966	243.3355	0.6612	8	59	12.38	65	52	54.1	11	47	44.76	10	22	29.2	272716	
0.800	328.1190	359.9959	243.3341	0.6619	8	59	12.23	65	52	53.7	11	47	45.10	10	22	27.8	272717	
0.880	328.1184	359.9966	243.3334	0.6619	8	59	12.63	65	52	52.3	11	47	45.28	10	22	26.5	272717	
0.960	328.1190	359.9973	243.3321	0.6619	8	59	12.85	65	52	54.6	11	47	45.55	10	22	24.0	272718	
1.040	328.1190	359.9966	243.3314	0.6619	8	59	12.70	65	52	54.1	11	47	45.72	10	22	22.7	272718	
1.120	328.1184	359.9979	243.3307	0.6619	8	59	13.33	65	52	53.2	11	47	45.90	10	22	21.4	272719	
1.200	328.1190	359.9973	243.3293	0.6626	8	59	13. 9	65	52	54.6	11	47	46.24	10	22	20.0	272720	
1.280	328.1197	359.9973	243.3286	0.6626	8	59	13. 7	65	52	56.4	11	47	46.41	10	22	18.7	272720	
1.360	328.1184	359.9979	243.3273	0.6626	8	59	13.57	65	52	53.2	11	47	46.68	10	22	16.2	272721	
1.440	328.1190	359.9973	243.3266	0.6626	8	59	13.33	65	52	54.6	11	47	46.86	10	22	14.9	272721	


ACQUI ON LES II
18 29 14 18 39 14
25.000
20.000
15.000
10.000
5.000
.000
GEL
225.00
227.00
229.00
231.00
233.00
235.00
237.00
239.00
241.00
243.00
245.00
GAZ

PUNCHALLOC

In the Haystack Pointing System certain quantities are of interest to, or shared by, many programs. It is essential that separate programs reference the same memory cell when using common symbolic notation within a program. A Flexowriter tape called the SPURT allocation tape* provides this assurance. This tape is really an external symbol table used by the SPURT compiler to equate symbolic labels with absolute memory cells. Because it is tedious to update paper tape whenever a change is made, a card deck containing this information is maintained. The PUNCHALLOC program transfers the card images on magnetic tape to a System Allocation paper tape.

INPUT

The deck of input cards containing allocation data must be loaded on magnetic tape at 556 characters-per-inch density with the 80 column loader at the Building J computer facility.

The card deck consists of a heading card followed by allocation cards interspersed with comment cards.

CARD FORMAT

Heading Card	Col. 1-10	Label (must start in column 1)
	Col. 12-21	ALLOCATION
	Col. 22-80	A comma followed by comments, terminated by a blank (these comments will be punched)
Allocation Cards	Col. 1-10	Label (must start in column 1)
	Col. 12-16	Location, five digits in octal.
	Col. 17-80	Comments (these will not be punched)
Comment Cards	If column one is blank, none of the card will be punched. (This card was designed to expand comments for IBM 1401 printout, not for U490 application.)	

OUTPUT

The format for the punched paper Allocation tape is as follows:

---

* SPURT General Reference Manual, Sect. 9, pp. 1 and 2.

```
←
↑ ←
Label → Allocation ⊙ Notes ←
Label → Value ←
Label → Value ←
Label → Value ←
↓ . .
```

The notation used is as follows:

←	Carriage Return
↑	Upper Case
→	Tab
⊙	Point Separator
↓	Lower Case
.	Period

PROGRAM LOGIC

SPURT listings 210, 211, 212 appear in Appendix C.

At location BEGIN the paper tape punch connected to the U490 is turned on and a leader is punched. Buffer control is set to write from BUF1 first and BUFSW is set to alternate output buffers.

The first card is then read from magnetic tape. All input from magnetic tape is accomplished using the subroutine READTAPE. This subroutine reads BCD records from tape into a location designated in the calling sequence and checks the status of the tape unit after reading. Control is passed to EOF whenever an end-of-file mark is encountered.

The contents of the operation field (Cols. 12-21) of the card is verified to contain the letters ALLOCATION to be certain that the correct input is being used. In the event of a mismatch, the program stops and pressing the high-speed button will restart the program at the beginning. With no mismatch, the first buffer is started with carriage return, upper case, carriage return.

Now the location field, up to tne first blank, is converted to Flexowriter characters by the subroutine BCDTOFLEXO. The subroutine converts BCD, starting with the word in INBUF + B1 and puts each Flexowriter character in a separate word starting at Ø + B5. Therefore, B1 must be set before BCDTOFLEXO is called. B5 is reset when the buffers are switched and is stepped whenever a character is stored.

A tab is then inserted into the card image immediately ahead of the operation field (Col. 11) and the rest of the card, to the first blank, is converted to Flexowriter characters.

Location L14D is the beginning of the main loop. Beginning at this location, a carriage return is added to the output buffer, the output buffer control is set up, the buffers are switched and output of the full buffer is initiated.

At location NOTHERCARD the next card is read from tape using READTAPE. Column one of this card is checked. If it is blank the card is a comment card, which is skipped and another card is read and checked.

If column one is non-blank the word in the location field of the card is converted to Flexowriter characters with BCDTOFLEXO, a tab is added to the output buffer and the five digit location field is converted.

Control is then returned to L14D and the program cycles until it is interrupted when READTAPE finds an end-of-file mark and control is transferred to EOF.

EOF finishes the paper tape with carriage return, lower case, period, period and a trailer, turns the paper tape punch off and stops.

Pressing the high-speed button will recycle the program from the beginning.

OPERATION

A. Load the Allocation cards on tape at the density of 556 characters-per-inch as one file with the IBM 1401 using the 80 column loader.

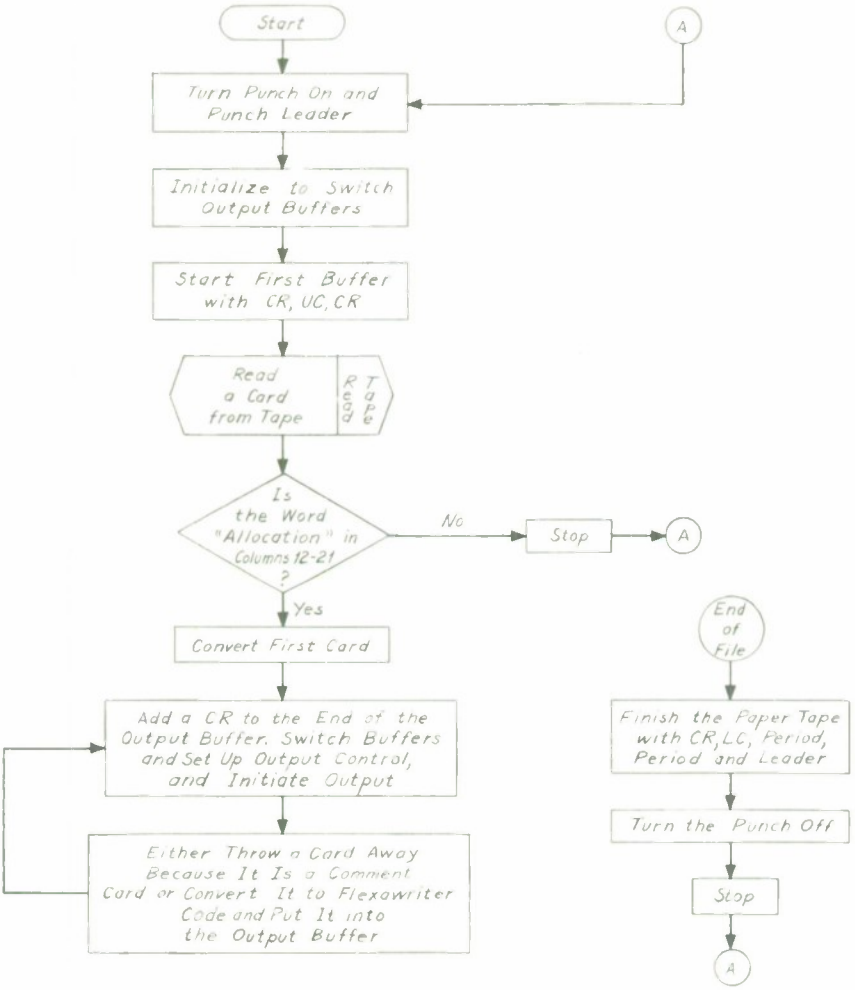
B. Load the program at a convenient location using TOPS.

C. Mount the BCD input tape on servo 3 (normally drive D).

D. Start at the load location.

3-62-4235

PUNCH ALLOCATION TAPE: FLOW DIAGRAM



SYSLOADER

INTRODUCTION

The SYSLOADER program is a Haystack Pointing System Peripheral program whose major purpose is to load and merge the presently thirty individual system programs onto a Master Pointing Program magnetic tape so as to optimize the loading and operation of the Pointing System.

INPUT

Inputs to the program are: 1) Instructions from the user via the teleprinter, 2) the Master In-Core Programs Tape, 3) the Master Celestial Computation Programs Tape and 4) the Master Data Processing Programs Tape. Inputs 2, 3 and 4 are generated by the System Updater program and are in the Spurt 321 format.

OUTPUT

Principal output is the Master Bootstrap Pointing Program Tape whose format will be discussed in some detail. Additionally, SYSLOADER affords a teleprinter type-out which includes a map of allocated memory as well as a log of all proceedings. An example of this type-out is given in Fig. 1.

OPERATION

SYSLOADER was designed as an upper loader and is usually loaded by TOPS at 70000; the dynamic start point is at load location +2 hence 70002.

Transfer to this point will cause SYSLOADER to type:

KEY 1 ON = NO LOG, KEY 2 ON = DUP INPUT ... ENTER DATE ETC ...

This is a memory jog to the user which says that if jump key 1 is turned on, there will be no type out of the memory map whereas if jump key 2 is turned on, all magnetic tape records read from unit 2 (usually servo C) will be copied onto unit 3 (usually servo D). Finally, the user is invited to type in any number of alphanumeric characters he wishes for identification purposes. The terminating character here (as well as elsewhere in SYSLOADER) is the C. R. (carriage return).

Core memory location 137_8 at this point contains the entry to Univac's utility package known as TOPS. Because this location might be overlayed in the

process of making the Master Pointing Program Tape, SYSLOADER transfers the contents of this location to the C/S (common storage) register SKIP for later use by the control program MCP.

Now SYSLOADER types out the message ...

I/C (1) B/S (2) CCP (3) DPP (4)

which when translated means: to process the Master In-Core Programs Tape enter 1 followed by a C. R. ; for the Master Celestial Programs Tape enter 3 and a C. R. ; for the Master Data Processing Programs Tape enter 4 and a C. R. ; finally, if you are ready to make a "bootstrap" record, enter a 2 and a C. R.

It should be noted that the ordering of the activities is left to the user and not determined by the program. Thus, it is that SYSLOADER can be used just to load the Master In-Core Program Tape or just to duplicate any one of the three master tapes that are inputs to the program. We shall, however, follow the program in what is the normal course of events. We shall assume that the user has on hand an up-to-date version of each of the input masters and wishes to obtain a Master Bootstrap Pointing Program System Tape and a type-out of allocated memory.

A. Phase I: Processing the Master In-Core Programs Tape

In answer to the question posed above, the user would first elect choice (1), the in-core programs.

Next, SYSLOADER will type-out

B/A (UNLESS 6000)

which asks where in memory (base address) you wish to originate the system. If the answer is not 6000, type in up to 5 octal digits and C. R. or if 6000 is your choice only C. R. (Memory locations ~ 0 to ~ 6000 contain TOPS. Because the Pointing System and TOPS can coexist, system origin has been arbitrarily placed at 6000. If the need for more storage arises, there is nothing to prevent electing a lower system origin, say 200_8, at this point.)

Now SYSLOADER types out the headings of the columns as follows:

SYSTEM PROGRAM PROGRAMMER + DATE FIRST LAST RUN INIT
NAME NAME LOCTN LOCTN ENTRY ENTRY

and proceeds to load program after program provided each is in the correct format, density, parity, etc. Each program is loaded one behind the other with a spacing

between programs that can be varied. As each program is loaded, that program's five fieldata character "name" is placed in the SYSNAMES table in C/S and its U-TAG is added to the SYSENTRIES table in C/S. When SYSLOADER detects that it is loading the control program, MCP, that U-TAG is additionally placed in C/S register MCPGM for reasons to be seen later.

This business of stacking the individual programs goes on until either an incompatible format (non Spurt 321 or 320) or an end-of-file is detected. If at this point SYSLOADER has been copying the input records onto magnetic tape unit 3, it will type . . .

EOF ON D (1)

meaning . . . if you desire to write an end-of-file on servo D (unit 3) answer with a 1 and a C. R. Otherwise, just a C. R. In either event the program again asks the basic question . . .

IC (1) B/S (2) CCP (3) DPP (4)

Assuming we have arrived here as a result of an end-of-file being found on the Master In-Core Program Tape, which was just correctly read and loaded, we are now ready to copy out this image of core memory onto tape as a bootstrap record and this is done in Phase II.

B. Phase II: Bootstrap

"Bootstrap" is the name given to the mechanism whereby a magnetic tape of indefinite length in the correct format is automatically loaded, checksummed, and executed by the UNIVAC hardware. The Pointing Program bootstrap record is made on unit Ø (normally servo A).

Thus when the bootstrap option is elected, SYSLOADER positions the tape on unit Ø to the loadpoint since the bootstrap record (by definition) is the first record on a bootstrap tape.

Now the question . . .

FWA

which asks the user to type in up to 5 octal digits to specify the first word address of the record to be bootstrapped. A carriage return here is equivalent to answering 140_8 and this is usually the case since it permits recording TOPS which is normally in core at this time.

Next the question . . .

LWA

which analogously is the last word address of the block. A carriage return is equivalent to typing 77776. (The checksum must be placed in LWA + 1 = 77777.) Thus, it is that virtually all of core memory is set up for recording in the single bootstrap record. Before the record is actually written, two things occur:

First, a JPL(MCPGM) is inserted in the record such that this will be the instruction that is executed when the record is successfully bootstrapped. Thus it is that control will pass automatically to the control program, MCP, upon bootstrapping irrespective of where in memory SYSLOADER has placed it.

Second, the entire block which is about to be written is check summed and this sum complemented is made the last word in the block.

Now the record is written. If the record is non-normal in any respect, SYSLOADER repositions the tape and retries indefinitely. A successful recording results in the typing of

B/S DONE . . .

followed again by the basic question

I/C (1) B/S (2) CCP (3) DPP (4)

The tape on Unit Ø is now positioned at the end of the bootstrap record. The next step is to add the individual Celestial Computation Programs and this is done in Phase III.

C. Phase III: Processing the Master Celestial Computation Programs Tape

As SYSLOADER loads the in-core programs, it keeps a running base address, i.e., where in memory the next program will go. Thus, it is that when CCP is elected as an option SYSLOADER will ask . . .

B/A OTHER THAN NNNNN

when NNNNN is the location where the next in-core program would have gone. If this location is satisfactory, the user merely touches the carriage return. Otherwise he enters a five digit octal number and this will be the common origin of all the celestial computation programs.

Now SYSLOADER begins the process of reading in the celestial computation programs one after the other. As each is read in to the common origin specified SYSLOADER forms a self-contained image of the program which is written out as a single record for each program onto the Master Pointing Program Tape on unit Ø. Each program is written out in such a way that it can be later loaded by MCP in the highly efficient UNIVAC search read mode. The format of these search mode records is included in Fig. 2 - Layout of the Master Pointing Program System Tape.

As SYSLOADER loads and records the celestial computation programs, a note is made as to the amount of storage required by the largest of these programs. This is done so that SYSLOADER will be able to recommend a common origin for the Data Processing Programs which must occupy a place in core memory behind the longest celestial computation program.

Loading of the celestial computation programs is terminated upon encounter of a change of format or an end-of-file on the Master Celestial Computation Programs Tape. At this point SYSLOADER asks . . .

EOF (1)

which in effect says that if the celestial computation program just loaded was the last one to be loaded and if there are no data processing programs to be added to the Master Pointing Program Tape, an end-of-file should be written here and will be written by responding with a 1 and a C. R. If no end-of-file is desired merely carriage return. And again the basic question . . .

I/C (1) B/S (2) CCP (3) DPP (4)

At this point the user may elect to add the last class of programs to the Master tape, the Data Processing Programs.

D. Phase IV: Processing the Master Data Processing Programs Tape

Here SYSLOADER will type out . . .

B/A OTHER THAN MMMMM

where MMMMM is a five digit octal integer representing a location in memory behind the longest celestial computation program at which the data processing programs may share a common origin. From this point on the loading of the data processing programs exactly parallels that for the celestial computation programs. When this phase of loading is completed the user is again invited to write an end-of-file on the

Master Tape. Since at this point there is nothing further to add to the tape, the user must elect to write the end-of-file.

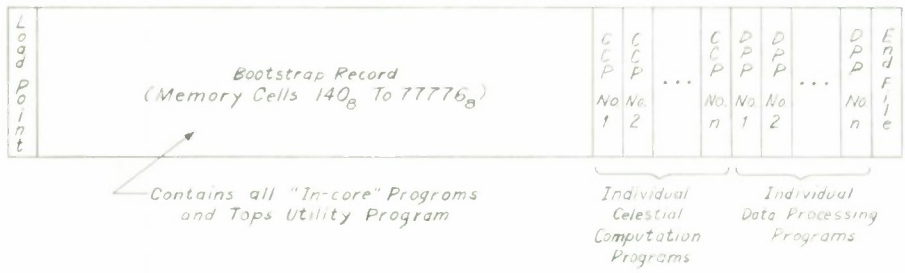
Now the user is ready to test the new tape and initiates this procedure by pressing the "start Pointing Program" button. This action automatically rewinds the tape and activates the bootstrap mechanism. A successful write-out of the bootstrap record will be indicated when the type-out TITLE appears on the teleprinter.

SYSTEM NAME	PROGRAM NAME	PROGRAMMER + DATE	FIRST LOCTN.	LAST LOCTN.	RUN ENTRY	INIT ENTRY
MCPGM	MCP	JDD*6/1/65	Ø6ØØØ	12161	Ø6ØØ2	Ø6ØØ2
KYBRD	INTERCOM	ADAMS-ASSOC*18 JUNE 65	12163	22Ø52	12165	12167
CORCT	CORCT	CLARK*9 JUNE 64	22Ø54	24272	241Ø7	22Ø56
INTER	INTER	TEOSTE* 6/3/65	24274	26155	25573	24276
AESCN	DUMSCAN	W. R.CROWTHER*JAN. 28*	26157	26171	26163	26161
RECRD	RECORDING	JDD+AAM*4/28/65	26173	2676Ø	26265	26175
PRLOG	PRLOG	WHITE* 2 JULY 65	26762	3Ø641	27ØØ1	26764
RADEC	RADEC	STYLOS*11 JUNE 65	3Ø643	323Ø5	31Ø31	3Ø645
DYDMP	DYDMPPGM	S. J. WHITE*6/23/64	323Ø7	32727	32311	32473
CHCOR	CHANGECORE	S.J. WHITE*MAR. 25*64	32731	33Ø35	32733	32733
ADSCN	SCAN	P. CROWTHER*26 JAN. 65	33Ø37	35114	33764	33Ø42
COCON	COCON	P. STYLOS*20 APRIL 65	35116	37251	35626	3512Ø
CHPAR	PARAMETER	MATHIASEN*3/26/65	37253	37475	37255	37257
ACQUI	ACQUI	TEOSTE*6/14/65	37477	42452	4ØØ31	375Ø1
PLANP	PLANNER	JDD*6/26/64	42454	42575	42462	42456
WFORD	WESTFORD	JDD*1/29/65	42577	4314Ø	42626	426Ø1
TIMEP	TIMING	JDD*4/21/65	43142	4437Ø	43511	43144
PLOTP	PLOTP	R. TEOSTE*4/9/65	44372	44634	4461Ø	44374
PRINT	PRINTOUT	SATTEST*1/28/65	44636	5435Ø	4464Ø	4464Ø
FRADC	FXRADEC	MATHIASEN*2/17/65	44636	45473	4464Ø	44643
MOONP	MOONTRACK	HJF+DMH*11/30/64	44636	5Ø61Ø	45Ø72	4464Ø
STARP	STARTRACK	FRACTMAN*1/26/65	44636	53455	44717	4464Ø
SUNPG	SUNTRACK	HJF+DMH*11/30/64	44636	5Ø166	45Ø37	4464Ø
PLNET	PLANETRACK	HJF+DMH*11/30/64	44636	5Ø5Ø5	45Ø71	4464Ø
FXANE	FXAZEL	MATHIASEN*4/20/65	44636	45Ø65	4464Ø	44643
BELTP	BELTP	PONTON*29 OCT. 64	44636	54572	455Ø2	4464Ø
SATEL	SATEL	MCQUILKIN*21 JUNE 65	44636	54461	52676	52652
PDMTR	RDMTRSCAN	P. CROWTHER*2 JULY 65	54574	62121	53723	53462
RDMTR	RADIOMETER	STYLOS*18 JUNE 65	54574	6132Ø	55Ø53	54576

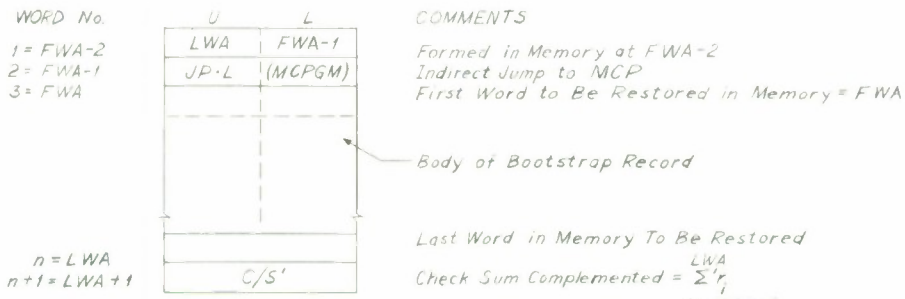
Fig. 1.

LAYOUT OF MASTER POINTING PROGRAM MAGNETIC TAPE

I. GROSS FORMAT



II. BOOTSTRAP RECORD FORMAT



N.B. Recording Is Made From FWA-2 to LWA+1

III. SEARCH MODE RECORD FORMAT

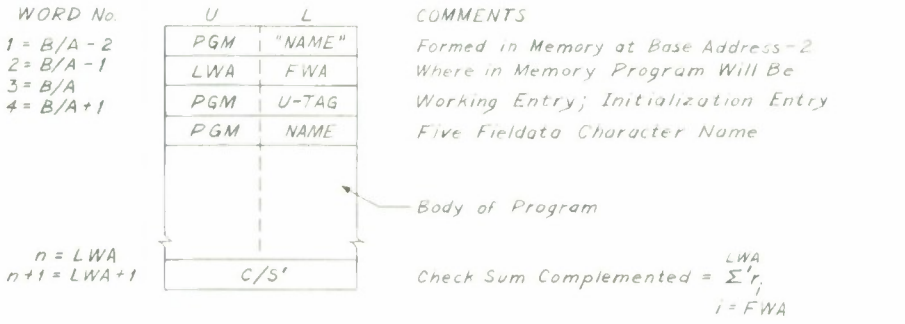


Fig. 2. Layout of master pointing program magnetic tape.

TAPECOPY

INTRODUCTION

To permit duplication of ephemeris tapes, and of the master in-core, celestial, and data processing program tapes, a tape copying program (TAPECOPY) was written for the U-490.

INPUT

The input is a binary format, high density, magnetic tape on Servo unit 2, of any number of files and records. The maximum size record that can be handled is 77711-K (in octal) where K is the storage location at which the program is loaded. Since K is at least 136, the master bootstrap tape which has an initial record of 77642 words cannot be duplicated by this program. Duplicate copies of the bootstrap tape must be made by SYSLOADER (see the write-up elsewhere in this memo for details).

OUTPUT

The output is a copy of the input tape. It is written on Servo unit 3.

When each file is written the number of records in that file is displayed (in octal) in index register 2. The total number of files written on the tape is displayed in index register 1.

Any other status word, but a normal or end-of-file indication, causes the program to stop. Any troubles with the tape must be fixed, or a new tape loaded. Pushing HIGH SPEED initiates duplication of the next tape.

UPDATER

INTRODUCTION

Each program included in the dynamic Haystack Pointing System is recorded on one of three Master System magnetic tapes* in SPURT 321 format†. As individual programs change, a method is needed to update the particular Master System Tape (MST) on which it appears. A Haystack Pointing System support program, called UPDATER, was written for this purpose.

INPUT

There are three inputs to UPDATER, the particular MST to be updated, the tape containing new versions of existing programs and/or additional new programs, and, via the typewriter, the deletions (if any) that are to be made from the new MST.

A. Old Master System Tape

The primary input is the old MST. This must contain at least one program in SPURT 321 format. These programs must be separated from each other by end-of-record marks and not end-of-file marks. The last program is followed by an end-of-file mark or a change of format (non-SPURT 321).

B. Correction Tape

All programs to replace programs on the old MST and all programs to be added to the new MST must appear on a second magnetic tape in format identical to the old tape.

One system convention demands that the second word of memory occupied by each program contain a five Fieldata character System Name which is that program's unique identifier. This System Name is the means by which UPDATER distinguishes each program.

---

* (1) Master In-Core Programs Tape (2) Master Celestial Computation Programs Tape (3) Master Data Processing Programs Tape.

† SPURT 321 format is a relative bi-octal format used as input to SPURT III. It is described in the REX manual, Appendix A, section B.

When the same System Name appears on both the old MST and the correction tape, the program from the correction tape will replace the old one on the new MST being written. Any programs which appear on the correction tape but not on the old tape will be added at the end of the new MST.

C. Deletions

At the outset, the program stops and asks for the System Names of programs to be erased from the old tape. The five character System Names should be typed, separated by the special character □ on the keyboard and ended by a carriage return.

Programs whose names are listed here will not appear on the new MST. If there are to be no erasures, simply carriage return.

Errors at the keyboard can be corrected by striking the ↑ key for each character to be changed.

OUTPUT

The output is a new Master System Tape in the same format as the input. It is simply the old tape with additions, replacements and deletions.

PROGRAM LOGIC

SPURT listings 210, 211, 212 appear in Appendix A.

From BEGIN through FIRSTERASE the program asks for erasures and makes a table, called ERASELIST, from the list typed at the console.

From FIRSTERASE + 4 through CSLISTED, UPDATER searches the correction tape and makes a table, called CHANGELIST, of all the System Names it finds.

Starting at CKNEXTOLD it picks up a System Name from the old tape and checks it with both CHANGELIST and ERASELIST.

If the name is on neither list, the program is copied from the old tape to the new. If it is in CHANGELIST, the program is skipped on the old tape and the program of the same name is copied from the correction tape to the new tape. If it is in ERASELIST the program is simply skipped on the old and new tapes. After any of these three alternatives the program returns to CKNEXTOLD.

This loop is terminated by either an end-of-file mark or a change of format on the old tape. At that time, UPDATER jumps to EOF where CHANGELIST is

searched and all programs not previously copied to the new tape are added to the end of it. The program then writes an end-of-file mark on the new tape and rewinds all three tapes. Unless jump key 1 is on, a log of the old MST is typed on the console typewriter and, unless jump key 2 is on, a log of the new MST is typed on the console typewriter. UPDATER now stops ready to recycle when the high-speed button is depressed.

OPERATION

A. Load the UPDATER program at some convenient location using TOPS.

B. Mount the old Master System Tape to be updated on servo 1 (normally drive B).

C. Mount a corrective tape, containing new programs and/or new versions of old programs on servo 2 (tape unit C).

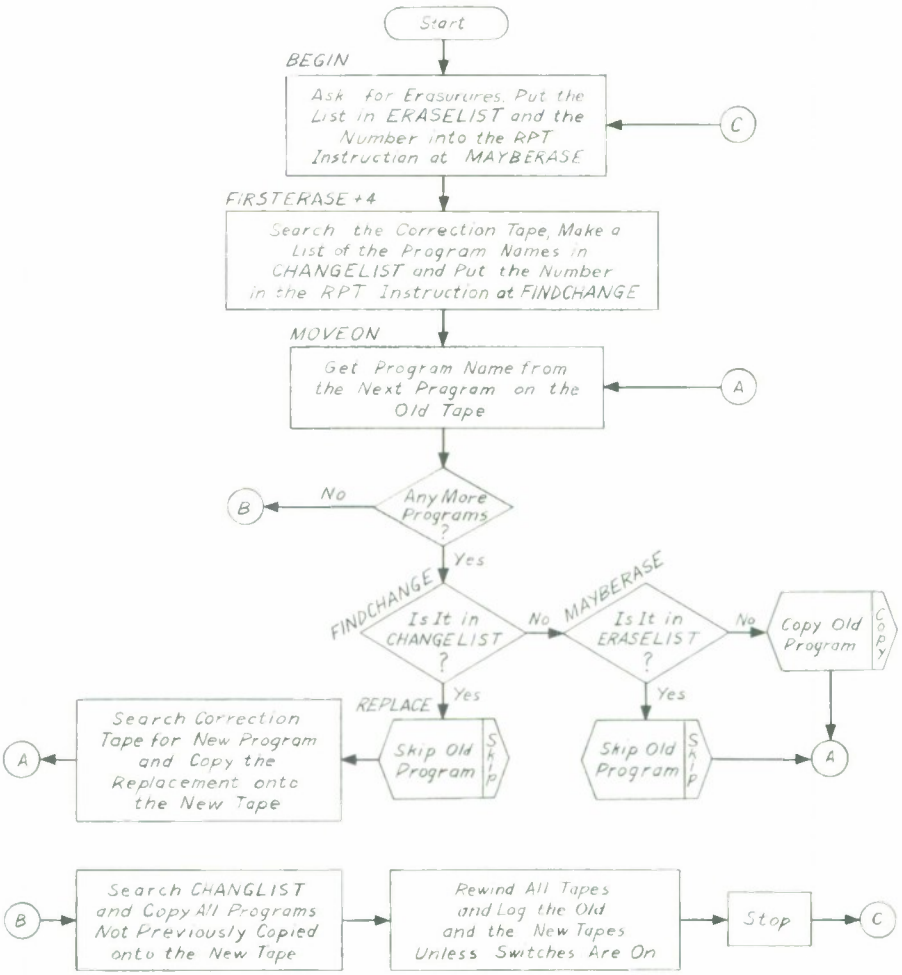
D. Mount a blank tape on servo 3 (tape unit D) to receive the new version of the particular Master System Tape.

E. Start at the load location.

F. The program will stop and ask for any deletions. If there are any, type their five character system names, separated by the □ character and terminated with a carriage return. If there are none, type a carriage return.

3-62-4237

UPDATER FLOW DIAGRAM



```
CARDS    L1 ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     CC000 LIST210        PROGRAM   MATHIASEN*8/21/64
   .     CC001 TYPE           MEANS     C2                                              CONSOLE TYPEWRITER CHANNEL
   .     CC002 TAPE           MEANS     C15                                             MAGNETIC TAPE CHANNEL
   .     CC003 EINPUT         EQUALS    00004                                           FO INPUT TAPE UNIT
   .     CC004 AUSPUT         EQUALS    00010                                           BCO OUTPUT TAPE UNIT
   .     CC005 TAPEEXTINT     EQUALS    35
   .     CC006 INITIAL        RIL                                   00000  60000 00000
   .     CC007                RJP  TAPEHANDLE                       00001  65000 01546  MAGNETIC TAPE HANOLER
   .     CC010                0    REWFO                            00002  00000 02436  REWINO SPURT FO TAPE
   .     CC011                PUT  W(JPPRINTOVR)*W(62)              00003  10030 02056  SET CONSOLE TYPEWRITER INTERRU
                                                                                        PT
                                                                     00004  14030 00062
   .     CC012                PUT  12000*U(36)                      00005  10000 12000  SET OELTA CLOCK INTERRUPT TO N
                                                                                        O-OP
                                                                     00006  14020 00036
   .     CC013                RJP  PRINT                            00007  65000 02032  PRINT INITIAL MESSAGE
   .     CC014                11D  INITPRINT1                       00010  00013 01310
   .     CC015                RJP  PRINT                            00011  65000 02032
   .     CC016                7    INITPRINT2                       00012  00007 01323
   .     CC017                RJP  TAPEHANOLE                       00013  65000 01546  MAGNETIC TAPE HANOLER
   .     CC02C                0    REWBCO                           00014  00000 02437  REWINO 1401 BCO TAPE
   .     CC021                ENT  A*UNPACKIMG                      00015  11000 00765  PREPARE BCO TAPE PARITY MESSAG
                                                                                        E
   .     CC022                RJP  UNPACK                           00016  65000 02226
   .     CD023                11D  FDTAPEPAR                        00017  00013 01477
   .     CC024                RJP  TRANSLATE                        00020  65000 02257
   .     CC025                550  UNPACKIMG                        00021  00067 00765
   .     CC026                PUT  L(OOUBLESP)*U(CARRIAGEC)         00022  10010 01167
                                                                     00023  14020 00764
   .     CC027                ENT  A*TAPEPARMSG                     00024  11000 01464
   .     CC030                RJP  PACK                             00025  65000 02403
   .     CC031                550  CARRIAGEC                        00026  00067 00764
   .     CC032                ENT  A*UNPACKIMG                      00027  11000 00765  PREPARE BCO EOF MESSAGE
   .     CC033                RJP  UNPACK                           00030  65000 02226
   .     CC034                3    EOFMESSAGE                       00031  00003 01515
   .     CC035                RJP  TRANSLATE                        00032  65000 02257
   .     DC036                150  UNPACKIMG                        00033  00017 00765
   .     CC037                PUT  L(ODUBLESP)*U(CARRIAGEC)         00034  10010 01167
                                                                     00035  14020 00764
   .     CC040                ENT  A*EOFMSG                         00036  11000 01512
   .     CC041                RJP  PACK                             00037  65000 02403
   .     CC042                15D  CARRIAGEC                        00040  00017 00764
   .     CC043                RJP  PRINT                            00041  65000 02032  PRINT TERMINATION MESSAGE INCL
                                                                                        UOING
   .     CC044                130  LISTOVER                         00042  00015 01563  KEY OPTIONS
   .     CC045                RJP  PRINT                            00043  65000 02032
   .     CC046                110  KOPTION1                         00044  00013 01600
   .     CC047                RJP  PRINT                            00045  65000 02032
   .     CC05D                6    KOPTION2                         00046  00006 01613
   .     CC051                RJP  PRINT                            00047  65000 02032
   .     CC052                120  KOPTION3                         00050  00014 01621
   .     CC053 CONTINUE       RJP  READTAPE                         00051  65000 01333  READ FIRST RECORO
   .     CC054                U-TAG     FRECORD+90*FRECORO          00052  00423 00412
```

SPURT OUTPUT NO. 210

LIST210 MATHIASEN*8/21/64

CARDS	L1	IC	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC055				PUT 60*L(HUNCREDS)	00053	10000	00060		SET PAGE NUMBER TO 001
						00054	14010	00222		
.	CC056				STR Q*L(TENS)	00055	14010	00223		
.	CC057				PUT 61*L(UNIT)	00056	10000	00061		
						00057	14010	00224		
.	CC060				CL L(WHEREAT)	00060	16010	00306		
.	CC061				CL L(TESTLINENO1	00061	16010	00260		
.	CC062				ENT A*L(RECORO1	00062	11010	00412		
.	CC063				SUB A*210*AZERO	00063	21400	00210		IS THIS A 210 TAPE
.	CC064				JP CHECK211	00064	61000	00307		NO
.	CC065				PUT L(L2101*L(FDTAPEPAR+5)	00065	10010	01520		
						00066	14010	01504		
.	CC066				RJP GETONELINE	00067	65000	00256		SPURT OUTPUT NO. 210 (LABEL)
.	CC067				MOVE 2*PAGE*LINE+230	00070	10030	00226		SET UP FO PAGE 1
						00071	14030	00730		
						00072	10030	00227		
						00073	14030	00731		
.	CC070				RJP UNOERSTAND	00074	65000	00230		WRITE PAGE 1, LINE 1
.	CC071				U-TAG LINE*TOPOFPAGE	00075	00701	01166		
.	CC072				MOVE 260*BCOIMAGE*PAGEHEAO1	00076	12700	00031		
						00077	10037	00732		
						00100	14037	01171		
						00101	72700	00077		
.	CC073				RJP PRINT	00102	65000	02032		
.	CC074				5 LINE+90	00103	00005	00712		
.	CC075				RJP GETONELINE	00104	65000	00256		SKIP ONE LINE
.	CC076				RJP GETONELINE	00105	65000	00256		PROGRAM AND PROGRAMMER
.	CC077				RJP UNOERSTAND	00106	65000	00230		WRITE LINE 2
.	CC100				U-TAG LINE*OOUBLESP	00107	00701	01167		
.	CC101				RJP PRINT	00110	65000	02032		
.	CC102				110 LINE+7	00111	00013	00710		
.	CC103				RJP GETONELINE	00112	65000	00256		NUMBER OF INSTRUCTIONS
.	CC104				RJP UNOERSTAND	00113	65000	00230		WRITE LINE 3
.	CC105				U-TAG LINE*OOUBLESP	00114	00701	01167		
.	CC106		FIRSTPAGE		RJP GETONELINE	00115	65000	00256		
.	CC107				ENT A*W(LINE+4)	00116	11030	00705		
.	CC110				SUB A*7373737373*ANOT	00117	21530	02451		IS THIS THE SPURT OUTPUT NO. 210 (LABEL)
.	CC111				JP MAKEUPHEAO	00120	61000	00124		YES
.	CC112				RJP UNOERSTAND	00121	65000	00230		WRITE NEXT LINE OF FIRST PAGE
.	CC113				U-TAG LINE*SINGLESP	00122	00701	01170		
.	CC114				JP FIRSTPAGE	00123	61000	00115		
.	CC115		MAKEUPHEAO		RJP PAGINATION	00124	65000	00175		INDEX BCO PAGE NUMBER
.	CC116				RJP WRITE	00125	65000	01713		WRITE FIRST LINE OF PAGE
.	CC117				U-TAG PAGEHEAO1+250*PAGEHEAO1	00126	01222	01171		
.	CC120				RJP GETONELINE	00127	65000	00256		
.	CC121				RJP GETONELINE	00130	65000	00256		
.	CC122				RJP UNOERSTAND	00131	65000	00230		WRITE SECOND LINE OF PAGE
.	CC123				U-TAG LINE*SINGLESP	00132	00701	01170		
.	CC124				MOVE 260*BCOIMAGE*PAGEHEAO2	00133	12700	00031		
						00134	10037	00732		
						00135	14037	01223		
						00136	72700	00134		

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CARDS   L1 IC LABEL       TA STATEMENT                                LOC    F JKB Y      NOTES

   .    CC125                RJP  GETONELINE                          00137  65000 00256  WRITE THIRD LINE OF PAGE
   .    CC126                RJP  UNDERSTAND                          00140  65000 00230
   .    CC127                U-TAG     LINE*OOUBLESP                  00141  00701 01167
   .    CC130                MOVE 26D*BCOIMAGE*PAGEHEA03              00142  12700 00031
                                                                      00143  10037 00732
                                                                      00144  14037 01255
                                                                      00145  72700 00143
   .    CC131                RJP  WRITE                               00146  65000 01713  SPACE A LINE
   .    CC132                U-TAG     SKIPLINE*SKIPLINE              00147  01307 01307
   .    CC133                CL   W(LINESPERPG)                       00150  16030 00174
   .    CC134 LISTLINE       RJP  GETONELINE                          00151  65000 00256
   .    CC135                RJP  UNDERSTANO                          00152  65000 00230  WRITE NEXT LINE OF OUTPUT
   .    CC136                U-TAG     LINE*SINGLESP                  00153  00701 01170
   .    CC137                RPL  Y+1*W(LINESPERPG)                   00154  36030 00174
   .    CC140                SUB  A*53D*ANEG                          00155  21700 00065  HAVE WE REACHEO ENO OF PAGE
   .    CC141                RJP  PAGEPRINT                           00156  65000 00160  YES
   .    CC142                JP   LISTLINE                            00157  61000 00151
   .    CC143 PAGEPRINT      ENTRY                                    00160  61000 00000  WRITE PAGE HEADING
   .    CC144                RJP  PAGINATION                          00161  65000 00175
   .    CC145                RJP  WRITE                               00162  65000 01713
   .    CC146                U-TAG     PAGEHEAD1+250*PAGEHEA01        00163  01222 01171
   .    CC147                RJP  WRITE                               00164  65000 01713
   .    CC150                U-TAG     PAGEHEAD2+250*PAGEHEA02        00165  01254 01223
   .    CC151                RJP  WRITE                               00166  65000 01713
   .    CC152                U-TAG     PAGEHEAD3+250*PAGEHEAD3        00167  01306 01255
   .    CC153                RJP  WRITE                               00170  65000 01713
   .    CC154                U-TAG     SKIPLINE*SKIPLINE              00171  01307 01307
   .    CC155                CL   W(LINESPERPG)                       00172  16030 00174
   .    CC156                EXIT                                     00173  61010 00160
   .    CC157 LINESPERPG     0                                        00174  00000 00000  NUMBER OF LISTING LINE PAST HE
                                                                                           ADING
   .    CC160 PAGINATION     ENTRY                                    00175  61000 00000
   .    CC161                RPL  Y+1*L(UNIT)                         00176  36010 00224  INDEX UNITS
   .    CC162                COM  A*72*YLESS                          00177  04600 00072  IS UNITS DIGIT GREATER THAN 9
   .    CC163                JP   NOOVERFLOW                          00200  61000 00213  NO
   .    CC164                PUT  60*L(UNIT)                          00201  10000 00060  YES.  RESET UNITS TO 0
                                                                      00202  14010 00224
   .    CC165                RPL  Y+1*L(TENS)                         00203  36010 00223  IS TENS DIGIT GREATER THAN 9
   .    CC166                COM  A*72*YLESS                          00204  04600 00072  IS TENS DIGIT GREATER THAN 9
   .    CC167                JP   NOOVERFLOW                          00205  61000 00213  NO
   .    CC170                STR  Q*L(TENS)                           00206  14010 00223  YES.  RESET TENS TO 0
   .    CC171                RPL  Y+1*L(HUNDREDS)                     00207  36010 00222  INDEX HUNDREOS
   .    CC172                COM  A*72*YLESS                          00210  04600 00072  IS HUNDREDS DIGIT GREATER THAN
                                                                                           9
   .    CC173                JP   NOOVERFLOW                          00211  61000 00213  NO
   .    CC174                STR  Q*L(HUNOREDS)                       00212  14010 00222  YES.  RESET HUNDREDS TO 0
   .    CC175 NOOVERFLOW     RJP  TRANSLATE                           00213  65000 02257
   .    CC176                3    HUNDREDS                            00214  00003 00222
   .    CC177                ENT  A*PAGEHEAD1+24D                     00215  11000 01221
   .    CC20C                RJP  PACK                                00216  65000 02403
   .    CC201                5    THOUSANDS                           00217  00005 00221
   .    CC202                EXIT                                     00220  61010 00175
   .    CC203 THOUSANDS      20   05                                  00221  00020 00005
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CARDS    L1 IO LABEL       TA STATEMENT                                  LOC    F JKB Y      NOTES

   .     CC204 HUNDREDS    46   60                                       00222  00046 00060
   .     CC205 TENS        46   60                                       00223  00046 00060
   .     CC206 UNIT        46   61                                       00224  00046 00061
   .     CC207             20   05                                       00225  00020 00005
   .     CC210 PAGE        F0   2*PAGE   I                               00226  25061 41205
                                                                         00227  05056 10505
   .     CC211 UNDERSTAND  ENTRY                                        00230  61000 00000  ROUTINE FOR WRITING BCD FROM F
                                                                                             O
   .     CC212             PUT  L(UNDERSTAND)*L(SETLINE)                00231  10010 00230
                                                                         00232  14010 00236
   .     CC213             STR  Q*L(SETCARRIAG)                         00233  14010 00234
   .     CC214 SETCARRIAG  PUT  L(0)*L(CONTCAR)                         00234  10010 00000  SET UP FOR CARRIAGE CONTROL
                                                                         00235  14010 00245
   .     CC215 SETLINE     PUT  U(0)*L(LINELOC)                         00236  10020 00000  SET UP FOR LOCATION OF INPUT L
                                                                                             INE
                                                                         00237  14010 00242
   .     CC216             ENT  A*UNPACKIMG                             00240  11000 00765  ADDRESS OF UNPACKED IMAGE
   .     CC217             RJP  UNPACK                                  00241  65000 02226  UNPACK FIELDATA WORD
   .     CC220 LINELOC     250  0                                       00242  00031 00000  LENGTH AND LOCATION OF INPUT L
                                                                                             INE
   .     CC221             RJP  TRANSLATE                               00243  65000 02257  TRANSLATE FROM FIELDATA TO BCD

   .     CC222             125D UNPACKIMG                               00244  00175 00765
   .     CC223 CONTCAR     PUT  L(0)*U(CARRIAGEC)                       00245  10010 00000  SET CARRIAGE CONTROL
                                                                         00246  14020 00764
   .     CC224             ENT  A*BCDIMAGE                              00247  11000 00732
   .     CC225             RJP  PACK                                    00250  65000 02403  PACK BCD WORDS
   .     CC226             130D CARRIAGEC                               00251  00202 00764
   .     CC227             RJP  WRITE                                   00252  65000 01713  WRITE BCD TAPE
   .     CC230             U-TAG     BCDIMAGE+250*BCDIMAGE              00253  00763 00732
   .     CC231             RPL  Y+1*L(UNDERSTAND)                       00254  36010 00230
   .     CC232             EXIT                                         00255  61010 00230
   .     CC233             COMMENT   ROUTINE                                                FOR READING IN NEXT LINE
   .     CC234 GETONELINE  ENTRY                                        00256  61000 00000
   .     CC235             ENT  B2*L(WHEREAT)                           00257  12210 00306
   .     CC236 TESTLINENO  BSK  B2*0                                    00260  71200 00000  DO WE NEED NEW RECORD
   .     CC237             JP   STRB2                                   00261  61000 00272  NO.
   .     CC240             RJP  READTAPE                                00262  65000 01333  YES.
   .     CC241             U-TAG     FRECORD+1820*FRECORD               00263  00700 00412
   .     CC242             ENT  A*W(FRECORD)                            00264  11030 00412
   .     CC243             SUB  A*122311241 3*ANOT                      00265  21530 02452  IS THIS LAST RECORD
   .     CC244             JP   WRITEEOF                                00266  61000 01523  YES
   .     CC245             RPL  Y-1*U(FRECORD)                          00267  37020 00412  NO.  OBTAIN COUNT OF LINES IN
                                                                                             RECORD - 1
   .     CC246             STR  A*L(TESTLINENO)                         00270  15010 00260  N-1
   .     CC247             CL   B2*                                     00271  12200 00000
   .     CC250 STRB2       STR  B2*L(WHEREAT)                           00272  16210 00306
   .     CC251             STR  B2*Q                                    00273  16200 00000
   .     CC252             MUL  260                                     00274  22000 00032
   .     CC253             ADD  Q*FRECORD+1                             00275  26000 00413  ADDRESS OF FIRST WORD OF LINE
   .     CC254             STR  Q*L(MOVELINE)                           00276  14010 00304
   .     CC255             ENT  A*LINE                                  00277  11000 00701
   .     CC256             STR  A-0*0                                   00300  33000 00000  DIFFERENCE OF ADDRESSES
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CARDS   L1 ID LABEL      TA STATEMENT                          LOC    F JKB Y      NOTES
   .    CC257            ENT  B6*A                            00301  12670 00000
   .    CC260            CL   Q*                              00302  10000 00000
   .    CC261            RPT  25D*AOVR                        00303  70500 00031  MOVE LINE FROM WHERE IT WAS RE
                                                                                   AD IN
   .    CC262 MOVELINE   RPL  Y+Q*W(0)                        00304  34030 00000
   .    CC263            EXIT                                 00305  61010 00256
   .    CC264 WHEREAT    0                                    00306  00000 00000
   .    CC265 CHECK211   SUB  A*1*AZERO                       00307  21400 00001  IS THIS A 211 TAPE
   .    CC266            JP   CHECK212                        00310  61000 00363  NO.
   .    CC267            PUT  L(L211)*L(FDTAPEPAR+5)          00311  10010 01521
                                                              00312  14010 01504
   .    CC270 ITISRIGHT  RJP  GETONELINE                      00313  65000 00256  SPURT OUTPUT NO. 21X  (X = 1 O
                                                                                   R 2)
   .    CC271            MOVE 2*PAGE*LINE+230                 00314  10030 00226
                                                              00315  14030 00730
                                                              00316  10030 00227
                                                              00317  14030 00731
   .    CC272            RJP  UNDERSTAND                      00320  65000 00230  WRITE FIRST LINE OF PAGE
   .    CC273            U-TAG     LINE*TOPOFPAGE             00321  00701 01166
   .    CC274            RJP  PRINT                           00322  65000 02032
   .    CC275            5    LINE+90                         00323  00005 00712
   .    CC276            MOVE 26D*BCDIMAGE*PAGEHEAD1          00324  12700 00031
                                                              00325  10037 00732
                                                              00326  14037 01171
                                                              00327  72700 00325
   .    CC277            RJP  GETONELINE                      00330  65000 00256  SKIP NEXT LINE
   .    CC300            RJP  GETONELINE                      00331  65000 00256  PROGRAM AND PROGRAMMER
   .    CC301            RJP  UNDERSTAND                      00332  65000 00230  WRITE SECOND LINE OE PAGE
   .    CC302            U-TAG     LINE*DOUBLESP              00333  00701 01167
   .    CC303            RJP  PRINT                           00334  65000 02032
   .    CC304            110  LINE+7                         00335  00013 00710
   .    CC305            MOVE 260*BCDIMAGE*PAGEHEAD2          00336  12700 00031
                                                              00337  10037 00732
                                                              00340  14037 01223
                                                              00341  72700 00337
   .    CC306            RJP  GETONELINE                      00342  65000 00256  COLUMN HEAOINGS
   .    CC307            RJP  UNDERSTAND                      00343  65000 00230  WRITE THIRO LINE OF PAGE
   .    CC310            U-TAG     LINE*OOUBLESP              00344  00701 01167
   .    CC311            MOVE 260*BCDIMAGE*PAGEHEAD3          00345  12700 00031
                                                              00346  10037 00732
                                                              00347  14037 01255
                                                              00350  72700 00346
   .    CC312            RJP  WRITE                           00351  65000 01713
   .    CC313            U-TAG     SKIPLINE*SKIPLINE          00352  01307 01307  SPACE ONE LINE
   .    CC314            CL   W(LINESPERPG)                   00353  16030 00174
   .    CC315 LISTLABEL  RJP  GETONELINE                      00354  65000 00256  WRITE NEXT LINE OF OUTPUT
   .    CC316            RJP  UNOERSTAND                      00355  65000 00230
   .    CC317            U-TAG     LINE*SINGLESP              00356  00701 01170
   .    CC320            RPL  Y+1*W(LINESPERPG)               00357  36030 00174
   .    CC321            SUB  A*51D*ANEG                      00360  21700 00063  HAVE WE REACHEO END OF PAGE
   .    CC322            RJP  PAGEPRINT                       00361  65000 00160
   .    CC323            JP   LISTLABEL                       00362  61000 00354
   .    CC324 CHECK212   SUB  A*1*AZERO                       00363  21400 00001  IS THIS A 212 TAPE
```

SPURT OUTPUT NO. 210

LIST210 MATHIASEN*8/21/64

CARDS	LI IO LABEL	TA STATEMENT	LOC	F JKB Y	NOTES
.	CC325	JP WRONGTAPE	00364	61000 00370	NO.
.	CC326	PUT L(L212)*L(FOTAPEPAR+5)	00365	10010 01522	
			00366	14010 01504	
.	CC327	JP ITISRIGHT	00367	61000 00313	
.	CC330 WRONGTAPE	RJP PRINT	00370	65000 02032	PRINT WRONG TAPE MESSAGE
.	CC331	15D WRTAPEMSG	00371	00017 00373	
.	CC332	JP CONTINUE*STOP	00372	61400 00051	
.	CC333 WRTAPEMSG	FO 11D*THIS IS NOT A 210, 211, OR 212	00373	31151 63005	
		TAPE. PUT CORRECT TAPE	00374	16300 52324	
			00375	31050 60562	
			00376	61245 60562	
			00377	61615 60524	
			00400	27056 26162	
			00401	05310 62512	
			00402	75050 52532	
			00403	31051 02427	
			00404	27121 03105	
			00405	31062 51205	
.	CC334	FO 4*ON UNIT C AND START.	00406	24230 53223	
			00407	16310 51005	
			00410	06231 10530	
			00411	31062 73175	
.	CC335 FRECORD	RESERVE 1830	00412	00000 00000	INPUT RECORD IN FIELDATA
.	CC336 LINE	RESERVE 250	00701	00000 00000	CURRENT LINE
.	CC337 BCDIMAGE	RESERVE 26D	00732	00000 00000	OUTPUT RECORD IN BCD PACKED
.	CC340 CARRIAGEC	0 0*	00764	00000 00000	OUTPUT BCD IMAGE UNPACKED
.	CC341 UNPACKIMG	RESERVE 1250	00765	00000 00000	
.	CC342	20 0	01162	00020 00000	
.	CC343	20 0	01163	00020 00000	
.	CC344	20 0	01164	00020 00000	
.	CC345	20 0	01165	00020 00000	
.	CC346 TCPOFPAGE	0 01	01166	00000 00001	
.	CC347 DOUBLESP	0 12	01167	00000 00012	
.	CC350 SINGLESP	0 20	01170	00000 00020	
.	CC351 PAGEHEAD1	RESERVE 260	01171	00000 00000	PAGE HEADING
.	CC352 PAGEHEAD2	RESERVE 260	01223	00000 00000	PAGE HEADING
.	CC353 PAGEHEAD3	RESERVE 260	01255	00000 00000	PAGE HEADING
.	CC354 SKIPLINE	2020202020	01307	20202 02020	
.	CC355 INITPRINT1	FO 11D*SPURT 210, 211, OR 212 OUTPUT I	01310	30253 22731	
		S BEING READ FROM UNIT C	01311	05626 12456	
			01312	05626 16156	
			01313	05242 70562	
			01314	61620 52432	
			01315	31253 23105	
			01316	16300 50712	
			01317	16231 40527	
			01320	12061 10513	
			01321	27242 20532	
			01322	23163 10510	
.	CC356 INITPRINT2	FD 7*FOR OUTPUT ON UNIT D FOR IBM 140	01323	13242 70524	

CAROS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
						01324	32312	53231		
						01325	05242	30532		
						01326	23163	10511		
						01327	05132	42705		
						01330	16072	20561		
						01331	64246	17505		
.		CC357	FORTYFIVE	45454	54545	01332	45454	54545		
.		CC36D	READTAPE	ENTRY		01333	61000	00000		READ SPURT LISTING TAPE
.		CC361		PUT	L(READTAPE)*L(INBUFFER)	01334	10010	01333		
						01335	14010	01340		
.		CC362		RPL	Y+1*L(READTAPE)	01336	36010	01333		INDEX RETURN POINT
.		CC363		CL	B1*	01337	12100	00000		CLEAR PARITY COUNTER
.		CC364	INBUFFER	IN	TAPE*W(D)	01340	73670	00000		ESTABLISH INPUT BUFFER
.		CC365		RJP	TAPEHANDLE	01341	65000	01546		MAGNETIC TAPE HANDLER
.		CC366		O	RDFO	01342	00000	02440		READ FO (BINARY HO)
.		CC367		ENT	A*U(STATUS)	01343	11020	01667		
.		CC37D		RSH	A*110	01344	02000	00013		
.		CC371		ADD	A*STATUSCODE	01345	20000	01372		
.		CC372		STR	A*L(INTERJUMP)	01346	15010	01347		
.		CC373	INTERJUMP	JP	L(0)	01347	61010	00000		GO TO APPROPRIATE STATUS ROUTI NE
.		CC374	BACK	EXIT		01350	61010	01333		
.		CD375	INTERLOCK	PUT	W(UNITNDINT)*W(LOCKP)	01351	10030	01371		INTERLOCK ROUTINE
						01352	14030	01364		
.		CC376		RJP	PRINT	01353	65000	02032		PRINT INTERLOCK MESSAGE
.		CC377		110	INTERLOCKP	01354	00013	01356		
.		CC40D		JP	INBUFFER*STDP	01355	61400	01340		
.		CC4D1	INTERLOCKP	FD	6*THERE IS AN INTERLOCK ON UNIT	01356	31151	22712		
						01357	05163	00506		
						01360	23051	62331		
						01361	12272	12410		
						01362	20052	42305		
						01363	32231	63105		
.		CC4D2	LOCKP	FD	5*C. CORRECT AND START.	01364	10750	50510		
						01365	24272	71210		
						01366	31050	62311		
						01367	05303	10627		
						01370	31750	50505		
.		CC403	UNITNOINT	FD	1*C. C	01371	10750	50510		
.		CC404	STATUSCODE	00	MACHERR	01372	00000	01637		NOT USED
.		CC4D5		04	MACHERR	01373	00004	01637		NOT USED
.		CC4D6		10	MACHERR	01374	00010	01637		NOT USED
.		CC407		14	MACHERR	01375	00014	01637		NOT USED
.		CC41D		20	MACHERR	01376	00020	01637		CHARACTER SYNC SEQUENCE ERROR
.		CC411		24	INBUFFER	01377	00024	01340		REWINDING
.		CC412		30	MACHERR	01400	00030	01637		CHAR SYNC CHAR COUNT ERROR
.		CC413		34	MACHERR	01401	00034	01637		FUNCTION WORD ERROR
.		CC414		40	BACK	01402	00040	01350		NORMAL COMPLETION
.		CC415		44	PARITY	01403	00044	01433		PARITY ERROR
.		CC416		50	MACHERR	01404	00050	01637		CONTROL UNIT SEQUENCE ERROR
.		CC417		54	WRITEEOF	01405	00054	01523		END OF FILE
.		CC42C		60	INPUTAPEND	01406	00060	01670		END OF TAPE
.		CC421		64	MACHERR	01407	00064	01637		NOT USED

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CARDS    L1 IC LABEL       TA STATEMENT                                  LOC    F JKB Y      NOTES

   .     CC422               70   MACHERR                                01410  00070 01637  ABNORMAL FRAME COUNT
   .     CC423               74   INTERLOCK                              01411  00074 01351  INTERLOCK FAULT
   .     CC424 MACHFAULT     F0   100*A MACHINE FAULT HAS OCCURRED ON     01412  06052 20610
                                  MAGNETIC TAPE UNIT
                                                                         01413  15162 31205
                                                                         01414  13063 22131
                                                                         01415  05150 63005
                                                                         01416  24101 03227
                                                                         01417  27121 10524
                                                                         01420  23052 20614
                                                                         01421  23123 11610
                                                                         01422  05310 62512
                                                                         01423  05322 31631
   .     CC425 UNITNO        FD   5* C.  THE STATUS CODE IS              01424  05107 50505
                                                                         01425  31151 20530
                                                                         01426  31063 13230
                                                                         01427  05102 41112
                                                                         01430  05163 00505
   .     CC426 FCSTATCODE    FD   2*                                    01431  05050 50505
                                                                         01432  05050 50505
   .     CC427 PARITY        BSK  B1*90                                 01433  71100 00011  PARITY ROUTINE.  HAVE WE READ
                                                                                            10 TIMES...
   .     CC430               JP   TRYAGAIN                              01434  61000 01446  NO. READ RECORD AGAIN
   .     CC431               PUT  U(UNITNDINT)*U(PMSG)                  01435  10020 01371
                                                                         01436  14020 01463
   .     CC432               RJP  PRINT                                 01437  65000 02032  PRINT PARITY MESSAGE
   .     CC433               110  PARITYMSG                             01440  00013 01451
   .     CC434               RJP  WRITE                                 01441  65000 01713  WRITE ADMONITION ON TAPE 0
   .     CC435               U-TAG     TAPEPARMSG+100*TAPEPARMSG        01442  01476 01464
   .     CC436               RPL  Y+1*W(LINESPERPG)                     01443  36030 00174  INDEX LINE COUNTER
   .     CC437               RPL  Y+1*W(LINESPERPG)                     01444  36030 00174
   .     CC44D               EXIT                                       01445  61010 01333  NORMAL EXIT
   .     CC441 TRYAGAIN      RJP  TAPEHANDLE                            01446  65000 01546  SET TO READ RECORD AGAIN
   .     CC442               0    BSF0                                  01447  00000 02441  BACKSPACE FO TAPE
   .     CC443               JP   INBUFFER                              01450  61000 01340  READ RECORD AGAIN
   .     CC444 PARITYMSG     FD   10D*A PARITY OCCURRED 10 TIMES ON MD   01451  06052 50627
                                  AGNETIC TAPE UNIT
                                                                         01452  16313 60524
                                                                         01453  10103 22727
                                                                         01454  12110 56124
                                                                         01455  05311 62212
                                                                         01456  30052 42305
                                                                         01457  22061 42312
                                                                         01460  31161 00531
                                                                         01461  06251 20532
                                                                         01462  23163 10505
   .     CC445 PMSG          FD   1*C.                                  01463  10750 50505
   .     CC446 TAPEPARMSG    RESERVE   110                              01464  00000 00000  BCD PARITY MESSAGE
   .     CC447 FDTAPEPAR     FO   110*A PARITY OCCURRED ON SPURT 210    01477  06052 50627
                                  TAPE IN FOLLOWING LINES
                                                                         01500  16313 60524
                                                                         01501  10103 22727
                                                                         01502  12110 52423
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CAROS   LI ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES
                                                                       01503  05302 53227
                                                                       01504  31056 26124
                                                                       01505  05310 62512
                                                                       01506  05162 30513
                                                                       01507  24212 12434
                                                                       01510  16231 40521
                                                                       01511  16231 23005
   .    CC450 EOFMSG        RESERVE   3*                              01512  00000 00000  BCO EOF MESSAGE
   .    CC451 EOFMESSAGE    FO    3*END OF LISTING                    01515  12231 10524
                                                                       01516  13052 11630
                                                                       01517  31162 31405
   .    CC452 L210          FO    1*  210                           01520  05056 26124
   .    CC453 L211          FO    1*  211                           01521  05056 26161
   .    CC454 L212          FO    1*  212                           01522  05056 26162
   .    CC455 WRITEEOF      RJP   WRITE                             01523  65000 01713
   .    CC456               U-TAG      EOFMSG+2*EOFMSG              01524  01514 01512
   .    CC457               RJP   TAPEHANDLE                        01525  65000 01546  MAGNETIC TAPE HANDLER
   .    CC460               0     EOFBCD                            01526  00000 02442  WRITE END OF FILE ON BCD TAPE
                                                                                         HO
   .    CC461               RJP   PRINT                             01527  65000 02032
   .    CC462               1     LISTED                            01530  00001 01635
   .    CC463               JP    KEYJUMPS*STOP                     01531  61400 01532
   .    CC464 KEYJUMPS      JP    FINISH*KEY1                       01532  61100 01541  TERMINATE OPTION
   .    CC465               JP    CONTINUE*KEY2                     01533  61200 00051  CONTINUE OPTION
   .    CC466               JP    NEXTJOB*KEY3                      01534  61300 01536
   .    CC467               JP    KEYJUMPS                          01535  61000 01532
   .    CC470 NEXTJOB       RJP   TAPEHANDLE                        01536  65000 01546
   .    CC471               0     REWFOWI                           01537  00000 02444  REWIND FD TAPE W/INTERLOCK
   .    CC472               JP    CONTINUE*STOP                     01540  61400 00051
   .    CC473 FINISH        RJP   TAPEHANDLE                        01541  65000 01546  MAGNETIC TAPE HANDLER
   .    CC474               0     REWFOWI                           01542  00000 02444  REWIND FD TAPE W/INTERLCOK
   .    CC475               RJP   TAPEHANDLE                        01543  65000 01546  MAGNETIC TAPE HANDLER
   .    CC476               0     REWBCOWI                          01544  00000 02443  REWIND BCD TAPE W/INTERLOCK
   .    CC477               JP    INITIAL*STOP                      01545  61400 00000
   .    CC5DD TAPEHANDLE    ENTRY                                   01546  61000 00000  MAGNETIC TAPE HANDLER
   .    CC501               PUT   W(TAPEDONE)*W(TAPEEXTINT)         01547  10030 01562
                                                                       01550  14030 00035
   .    CC502               PUT   L(TAPEHANDLE)*L($+1)              01551  10010 01546
                                                                       01552  14010 01553
   .    CC503               PUT   L(0)*L($+1)                       01553  10010 00000
                                                                       01554  14010 01555
   .    CC504               EX-FCT    TAPE*W(0)                     01555  13670 00000
   .    CC505               JP    $                                 01556  61000 01556
   .    CC506 STRCHAN       STR   TAPE*W(STATUS)                    01557  17670 01667
   .    CC507               RPL   Y+1*L(TAPEHANDLE)                 01560  36010 01546
   .    CC510               EXIT                                    01561  61010 01546
   .    CC511 TAPEDONE      RILJP     STRCHAN                       01562  60100 01557
   .    CC512 LISTOVER      FD    110*WHEN FILE HAS BEEN LISTED, YOU 01563  34151 22305
                            WILL HAVE THE  FOLLOWING
                                                                       01564  13162 11205
                                                                       01565  15063 00507
                                                                       01566  12122 30521
                                                                       01567  16303 11211
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CAROS	L1 IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
					01570	56053	62432		
					01571	05341	62121		
					01572	05150	63312		
					01573	05311	51205		
					01574	05132	42121		
					01575	24341	62314		
.		C0513	FO	2* OPTIONS	01576	05242	53116		
					01577	24233	00505		
.		C0514 KCPTION1	FO	110*KEY 1 TERMINATE (TAPES WILL BE REWOUNO BY COMPUTER1	01600	20123	60561		
					01601	05311	22722		
					01602	16230	63112		
					01603	05513	10625		
					01604	12300	53416		
					01605	21210	50712		
					01606	05271	23424		
					01607	32231	10507		
					01610	36051	02422		
					01611	25323	11227		
					01612	40050	50505		
.		C0515 KCPTION2	FO	6*KEY 2 CONTINUE WITH NEXT FILE	01613	20123	60562		
					01614	05102	42331		
					01615	16233	21205		
					01616	34163	11505		
					01617	23123	53105		
					01620	13162	11205		
.		C0516 KCPTION3	FO	110*KEY 3 CONTINUE WITH NEW SPURT TO APE (UNIT 2 WILL BE REWO	01621	20123	60563		
					01622	05102	42331		
					01623	16233	21205		
					01624	34163	11505		
					01625	23123	40530		
					01626	25322	73105		
					01627	31062	51205		
					01630	51322	31631		
					01631	05620	53416		
					01632	21210	50712		
					01633	05271	23424		
.		C0517	FO	1*UNO1	01634	32231	14005		
.		C0520 LISTEO	FO	1*OONE.	01635	11242	31275		
.		C0521 UNIT210	FO	1*C.	01636	10750	50505		
.		C0522 MACHERR	PUT	U(UNIT210)*U(UNITNO1	01637	10020	01636		
					01640	14020	01424		
.		C0523 MACHERROR	ENT	Q*W(STATUS1	01641	10030	01667		CONVERT STATUS COOE TO FIELO OATA
.		C0524	RJP	COCTTOFO	01642	65000	01651		
.		C0525	STR	A*W(FOSTATCOOE1	01643	15030	01431		
.		C0526	RJP	COCTTOFO	01644	65000	01651		
.		C0527	STR	A*W(FOSTATCOOE+11	01645	15030	01432		
.		C0530	RJP	PRINT	01646	65000	02032		PRINT MACHINE ERROR MESSAGE
.		C0531	170	MACHFAULT	01647	00021	01412		
.		C0532	JP	CONTINUE*STOP	01650	61400	00051		
.		C0533 CCCTTOFO	ENTRY		01651	61000	00000		CONVERT OCTAL TO FIELOATA

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CARDS   LI IC LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

   .    CC534            CL   A*                                       01652  11000 00000
   .    CC535            LSH  AQ*3                                     01653  07000 00003
   .    CC536            LSH  A*3                                      01654  06000 00003
   .    CC537            LSH  AQ*3                                     01655  07000 00003
   .    CC540            LSH  A*3                                      01656  06000 00003
   .    CC541            LSH  AQ*3                                     01657  07000 00003
   .    CC542            LSH  A*3                                      01660  06000 00003
   .    CC543            LSH  AQ*3                                     01661  07000 00003
   .    CC544            LSH  A*3                                      01662  06000 00003
   .    CC545            LSH  AQ*3                                     01663  07000 00003
   .    CC546            AOO  A*W(EXCESS60)                            01664  20030 01666
   .    CC547            EXIT                                          01665  61010 01651
   .    CC550 EXCESS60   60606      06060                             01666  60606 06060
   .    CC551 STATUS     0    0                                        01667  00000 00000
   .    CC552 INPUTAPEND PUT  W(ENOTAPU)*W(ENOTAPEM)                   01670  10030 01712
                                                                       01671  14030 01704
   .    CC553            RJP  PRINT                                    01672  65000 02032  PRINT END-OF-TAPE MESSAGE
   .    CC554            130  ENOOFTAPM                               01673  00015 01675
   .    CC555            EXIT STOP                                     01674  61410 01651
   .    CC556 ENOOFTAPM  FO   7*AN END OF TAPE HAS OCCURRED ON UNO     01675  06230 51223
                         IT
                                                                       01676  11052 41305
                                                                       01677  31062 51205
                                                                       01700  15063 00524
                                                                       01701  10103 22727
                                                                       01702  12110 52423
                                                                       01703  05322 31631
   .    CC557 ENDTAPEM   FD   6*     MOUNT NEW TAPE AND START.        01704  05050 50505
                                                                       01705  22243 22331
                                                                       01706  05231 23405
                                                                       01707  31062 51205
                                                                       01710  06231 10530
                                                                       01711  31062 73175
   .    CC560 ENDTAPU    FO   1* C.                                    01712  05107 50505
   .    CC561 WRITE      ENTRY                                         01713  61000 00000  WRITE U401 BCD TAPE
   .    CC562            PUT  L(WRITE)*L(WRITEOUT)                     01714  10010 01713  SET ADDRESS OF BUFFER CONTROL
                                                                                           WORD
                                                                       01715  14010 01723
   .    CC563            RPL  Y+1*L(WRITE)                             01716  36010 01713  SET FOR NORMAL RETURN
   .    CC564 WRITEAGAIN PUT  INTERRUPT*L(35)                          01717  10000 01725  SET INTERRUPT REGISTER
                                                                       01720  14010 00035
   .    CC565            EX-FCT     TAPE*W(WRBCD)                     01721  13670 02445  WRITE BCD NO
   .    CC566            RIL                                           01722  60000 00000
   .    CC567 WRITEOUT   OUT  TAPE*W(0)                                01723  74670 00000
   .    CC570            JP   $                                        01724  61000 01724  WAIT FOR EXTERNAL INTERRUPT
   .    CC571 INTERRUPT  STR  TAPE*W(CHANNEL)                          01725  17670 01761
   .    CC572            ENT  A*U(CHANNEL)                             01726  11020 01761  PICK UP STATUS WORD
   .    CC573            RSH  A*11D                                    01727  02000 00013
   .    CC574            AOO  A*STATCODE                               01730  20000 01764  LOCATION OF STATUS JUMP TABLE
   .    CC575            STR  A*L(INTJUMP)                             01731  15010 01732
   .    CC576 INTJUMP    JP   L(0)                                     01732  61010 00000  JUMP TO APPROPRIATE STATUS ROU
                                                                                           TINE
   .    CC577 BADMCH     PUT  U(WRITESERVO)*U(UNITNO)                  01733  10020 02004
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CARDS    LI IO LABEL       TA STATEMENT                                  LOC    F JKB Y      NOTES

                                                                         01734  14020 01424
    .    CC600             JP   MACHERROR                                01735  61000 01641
    .    CC601 REDUNDANT   RJP  TAPEHANOLE                              01736  65000 01546  MAGNETIC TAPE HANDLER
    .    CC602             0    BSBCO                                    01737  00000 02446  BACKSPACE BCO TAPE
    .    CC603 ERASE       RJP  TAPEHANOLE                              01740  65000 01546  MAGNETIC TAPE HANDLER
    .    CC604             0    ERASEBCO                                 01741  00000 02447  ERASE FORWARD BCD TAPE
    .    CC605             ENT  A*U(STATUS)                              01742  11020 01667  STATUS WORD
    .    CC606             RSH  A*110                                    01743  02000 00013
    .    CC607             SUB  A*10*AZERO                               01744  21400 00010  DIO WE GET A NORMAL COMPLETION
    .    CC610             JP   ERASE                                    01745  61000 01740  NO.
    .    CC611             JP   WRITEAGAIN                               01746  61000 01717  REWRITE RECORD
    .    CC612 ENOTAPE     RJP  TAPEHANDLE                               01747  65000 01546  MAGNETIC TAPE HANDLER
    .    CC613             0    EOFBCO                                   01750  00000 02442  WRITE ENO OF FILE ON BCO TAPE
                                                                                             HO
    .    CC614             RJP  PRINT                                    01751  65000 02032
    .    CC615             9D   NEWTAPE                                  01752  00011 02005
    .    CC616             RJP  TAPEHANDLE                               01753  65000 01546  MAGNETIC TAPE HANDLER
    .    CC617             0    REWFDWI                                  01754  00000 02444  REWIND FD TAPE W/INTERLOCK
    .    CC620             EXIT STOP                                     01755  61410 01713
    .    CC621 INTERLCK    RJP  PRINT                                    01756  65000 02032
    .    CC622             12D  WAKEUP                                   01757  00014 02016
    .    CC623             JP   WRITEAGAIN*STOP                          01760  61400 01717
    .    CC624 CHANNEL     0    0                                        01761  00000 00000
    .    CC625 CHANNEL1    0    0                                        01762  00000 00000
    .    CC626 CHANNEL2    0    0                                        01763  00000 00000
    .    CC627 STATCODE    00   BADMCH                                   01764  00000 01733  NOT USED
    .    CC630             04   BADMCH                                   01765  00004 01733  NOT USED
    .    CC631             10   BADMCH                                   01766  00010 01733  NOT USED
    .    CC632             14   BADMCH                                   01767  00014 01733  NOT USED
    .    CC633             20   BADMCH                                   01770  00020 01733  CHAR SYNC SEQUENCE ERROR
    .    CC634             24   WRITEOUT                                 01771  00024 01723  REWINDING
    .    CC635             30   BADMCH                                   01772  00030 01733  CHARACTER COUNT ERROR
    .    CC636             34   BADMCH                                   01773  00034 01733  FUNCTION WORD ERROR
    .    CC637             40   WRITE                                    01774  00040 01713  NORMAL COMPLETION
    .    CC640             44   REDUNDANT                                01775  00044 01736  PARITY
    .    CC641             50   BADMCH                                   01776  00050 01733  CNTROL UNIT SEQUENCE ERROR
    .    CC642             54   BADMCH                                   01777  00054 01733  ENO OF FILE
    .    CC643             60   ENDTAPE                                  02000  00060 01747  END OF TAPE
    .    CC644             64   BADMCH                                   02001  00064 01733  NOT USED
    .    CC645             70   BADMCH                                   02002  00070 01733  ABNORMAL FRAME COUNT
    .    CC646             74   INTERLCK                                 02003  00074 01756  INTERLOCK
    .    CC647 WRITESERVO  FD   1*D.  C                                  02004  11750 50510
    .    CC650 NEWTAPE     FD   90*MOUNT NEW OUTPUT TAPE ON UNIT AN02005  22243 22331
                                D START.
                                                                         02006  05231 23405
                                                                         02007  24323 12532
                                                                         02010  31053 10625
                                                                         02011  12052 42305
                                                                         02012  32231 63105
                                                                         02013  06231 10530
                                                                         02014  31062 73175
                                                                         02015  05050 50505
    .    CC651 WAKEUP      FD   10D*INTERLOCK FAULT ON OUTPUT TAPE       02016  16233 11227
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CARDS    LI IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

                            UNIT  . FIX IT AND
                                                                     02017  21241 02005
                                                                     02020  13063 22131
                                                                     02021  05242 30524
                                                                     02022  32312 53231
                                                                     02023  05310 62512
                                                                     02024  05322 31631
                                                                     02025  05057 50513
                                                                     02026  16350 51631
                                                                     02027  05062 31105
     .   00652               FO   2*START.                          02030  30310 62731
                                                                     02031  75050 50505
     .   00653 PRINT         ENTRY                                  02032  61000 00000  PRINT ON CONSOLE TYPEWRITER
     .   00654               PUT  L(PRINT)*L(SETUP)                 02033  10010 02032
                                                                     02034  14010 02035
     .   00655 SETUP         PUT  W(0)*W(UNPACKCODE)                02035  10030 00000
                                                                     02036  14030 02042
     .   00656               RPL  Y+1*L(PRINT)                      02037  36010 02032  INDEX RETURN POINT
     .   00657               ENT  A*BUFFERPRNT+2                    02040  11000 02062
     .   00660               RJP  UNPACK                            02041  65000 02226  UNPACK FIELDATA TEXT
     .   00661 UNPACKCODE    0    0                                 02042  00000 00000
     .   00662               ENT  Q*U(UNPACKCODE)                   02043  10020 02042  COUNT OF WORDS
     .   00663               MUL  5                                 02044  22000 00005  COUNT OF CHARACTERS
     .   00664               ADD  Q*BUFFERPRNT+1                    02045  26000 02061
     .   00665               STR  Q*A                               02046  14040 00000  LWA OF UNPACKED TEXT
     .   00666               LSH  A*150                             02047  06000 00017
     .   00667               SEL  SET*BUFFERPRNT                    02050  50000 02060  ADD FWA OF UNPACKED TEXT
     .   00670               STR  A*W(PRINTBUFFC)                   02051  15030 02057
     .   00671               OUT  TYPE*W(PRINTBUFFC)*MONITOR        02052  76130 02057  SET PRINT BUFFER W/INTERRUPT
     .   00672               RIL                                    02053  60000 00000
     .   00673               JP   $                                 02054  61000 02054
     .   00674 PRINTOVER     RILJP     L(PRINT)                     02055  60110 02032  RETURN AFTER PRINTING
     .   00675 JPPRINTOVR    JP   PRINTOVER                         02056  61000 02055
     .   00676 PRINTBUFFC    0    0                                 02057  00000 00000
     .   00677 BUFFERPRNT    0    04                                02060  00000 00004
     .   00700               0    03                                02061  00000 00003
     .   00701               RESERVE   100D                         02062  00000 00000
     .   00702 UNPACK        ENTRY                                  02226  61000 00000  UNPACK 1 CHARACTER TO WORD
     .   00703               STR  A*L(STOREUNPAK)                   02227  15010 02250  FWA OF UNPACKED TABLE
     .   00704               PUT  L(UNPACK)*L(PUTCOUNTER)           02230  10010 02226
                                                                     02231  14010 02232
     .   00705 PUTCOUNTER    PUT  W(0)*W(COUNTER)                   02232  10030 00000
                                                                     02233  14030 02256
     .   00706               RPL  Y+1*L(UNPACK)                     02234  36010 02226  INDEX RETURN POINT
     .   00707               CL   B3*                               02235  12300 00000
     .   00710               PUT  L(COUNTER)*L(GETPACK)             02236  10010 02256  FWA OF PACKED TABLE
                                                                     02237  14010 02245
     .   00711               ENT  A*U(COUNTER)                      02240  11020 02256  WORD COUNT
     .   00712               SUB  A*1                               02241  21000 00001  WORD COUNT MINUS ONE
     .   00713               STR  A*L(LOOPLIMIT)                    02242  15010 02253
     .   00714               CL   B4*                               02243  12400 00000  CLEAR CHARACTER COUNTER
     .   00715 LOOPSTART     ENT  B5*4                              02244  12500 00004  SET TO LOOP FIVE TIMES
     .   00716 GETPACK       ENT  Q*W(B3)                           02245  10033 00000  PACKED WORD
```

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CAROS   L# IO LABEL       TA STATEMENT                          LOC    F JKB Y      NOTES

.     00717 LOOP1           CL   A                              02246  11000 00000  CLEAR ACCUMULATOR
.     00720                 LSH  AQ*6                           02247  07000 00006  NEXT CHARACTER OF PACKED WORD

.     00721 STOREUNPAK      STR  A*L(B4)                        02250  15014 00000  STORE IN UNPACK TABLE
.     00722                 BSK  B4*77777                       02251  71400 77777  INDEX UNPACK TABLE
.     00723                 BJP  B5*LOOP1                       02252  72500 02246  HAVE WE FINISHED THIS WORD
.     00724 LOOPLIMIT       BSK  B3*                            02253  71300 00000  YES.  HAVE WE FINISHED ALL WOR
                                                                                     DS
.     00725                 JP   LOOPSTART                      02254  61000 02244  NO.
.     00726                 EXIT                                02255  61010 02226  YES.
.     00727 COUNTER         0    0*                             02256  00000 00000  U = WORD COUNT L = FWA PACKED
                                                                                     TABLE
.     00730 TRANSLATE       ENTRY                               02257  61000 00000  TRANSLATE FIELDATA TO BCD
.     00731                 PUT  L(TRANSLATE)*L(TRANS)          02260  10010 02257
                                                                02261  14010 02262
.     00732 TRANS           PUT  W(0)*W(COUNT)                  02262  10030 00000
                                                                02263  14030 02302
.     00733                 PUT  L(COUNT)*L(TRANS1)             02264  10010 02302  FWA OF FIELDATA TEXT
                                                                02265  14010 02272
.     00734                 STR  Q*L(TRANS3)                    02266  14010 02276
.     00735                 RPL  Y+1*L(TRANSLATE)               02267  36010 02257  INDEX RETURN POINT
.     00736                 RPL  Y-1*U(COUNT)                   02270  37020 02302  CHARACTER COUNT MINUS ONE
.     00737                 CL   B2                             02271  12200 00000  CLEAR CHARACTER COUNTER
.     00740 TRANS1          ENT  A*L(B2)                        02272  11012 00000  NEXT CHARACTER OF FIELDATA TEX
                                                                                     T
.     00741                 ADD  A*DICTIONARY                   02273  20000 02303
.     00742                 STR  A*L(TRANS2)                    02274  15010 02275  ADDRESS OF BCD CHARACTER
.     00743 TRANS2          ENT  A*L(0)                         02275  11010 00000  BCD TRANSLATION OF FD CHARACTE
                                                                                     R
.     00744 TRANS3          STR  A*U(B2)                        02276  15022 00000  STORE BCD IN UPPER HALF OF FD
                                                                                     TEXT
.     00745                 BSK  B2*U(COUNT)                    02277  71220 02302  HAVE WE TRANSLATED ALL CHARACT
                                                                                     ERS...
.     00746                 JP   TRANS1                         02300  61000 02272  NO.
.     00747                 EXIT                                02301  61010 02257  YES. RETURN
.     00750 COUNT           0    0                              02302  00000 00000
.     00751 DICTIONARY      00   20                             02303  00000 00020  SPACE
.     00752                 01   20                             02304  00001 00020  SPACE
.     00753                 02   20                             02305  00002 00020  SPACE
.     00754                 03   13                             02306  00003 00013
.     00755                 04   20                             02307  00004 00020  SPACE
.     00756                 05   20                             02310  00005 00020  SPACE
.     00757                 06   61                             02311  00006 00061  A
.     00760                 07   62                             02312  00007 00062  B
.     00761                 10   63                             02313  00010 00063  C
.     00762                 11   64                             02314  00011 00064  D
.     00763                 12   65                             02315  00012 00065  E
.     00764                 13   66                             02316  00013 00066  F
.     00765                 14   67                             02317  00014 00067  G
.     00766                 15   70                             02320  00015 00070  H
.     00767                 16   71                             02321  00016 00071  I
.     00770                 17   41                             02322  00017 00041  J
.     00771                 20   42                             02323  00020 00042  K
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CAROS   LI IC LABEL      TA STATEMENT                    LOC    F JKB Y      NOTES

.       CC772            21  43                          02324  00021 00043  L
.       CC773            22  44                          02325  00022 00044  M
.       CC774            23  45                          02326  00023 00045  N
.       CC775            24  46                          02327  00024 00046  O
.       CC776            25  47                          02330  00025 00047  P
.       CC777            26  50                          02331  00026 00050  Q
.       C1000            27  51                          02332  00027 00051  R
.       C1001            30  22                          02333  00030 00022  S
.       C1002            31  23                          02334  00031 00023  T
.       C1003            32  24                          02335  00032 00024  U
.       C1004            33  25                          02336  00033 00025  V
.       C1005            34  26                          02337  00034 00026  W
.       C1006            35  27                          02340  00035 00027  X
.       C1007            36  30                          02341  00036 00030  Y
.       C1010            37  31                          02342  00037 00031  Z
.       C1011            40  74                          02343  00040 00074  )
.       C1012            41  40                          02344  00041 00040  -
.       C1013            42  60                          02345  00042 00060  +
.       C1014            43  20                          02346  00043 00020  LESS THAN = BLANK
.       C1015            44  13                          02347  00044 00013  =
.       C1016            45  20                          02350  00045 00020  GREATER THAN = BLANK
.       C1017            46  60                          02351  00046 00060  AMPERSAND
.       C1020            47  53                          02352  00047 00053  DOLLAR SIGN
.       C1021            50  54                          02353  00050 00054  ASTERISK
.       C1022            51  34                          02354  00051 00034  (
.       C1023            52  14                          02355  00052 00014  QUOTATION MARK
.       C1024            53  13                          02356  00053 00013  COLON
.       C1025            54  20                          02357  00054 00020  SPACE
.       C1026            55  20                          02360  00055 00020  SPACE
.       C1027            56  33                          02361  00056 00033  ,
.       C1030            57  20                          02362  00057 00020  SPACE
.       C1031            60  46                          02363  00060 00046  LETTER O, NOT NUMERAL ZERO
.       C1032            61  01                          02364  00061 00001  1
.       C1033            62  02                          02365  00062 00002  2
.       C1034            63  03                          02366  00063 00003  3
.       C1035            64  04                          02367  00064 00004  4
.       C1036            65  05                          02370  00065 00005  5
.       C1037            66  06                          02371  00066 00006  6
.       C1040            67  07                          02372  00067 00007  7
.       C1041            70  10                          02373  00070 00010  8
.       C1042            71  11                          02374  00071 00011  9
.       C1043            72  14                          02375  00072 00014  APOSTROPHE
.       C1044            73  73                          02376  00073 00073  SEMICOLON = PERIOD
.       C1045            74  21                          02377  00074 00021  /
.       C1046            75  73                          02400  00075 00073  .
.       C1047            76  20                          02401  00076 00020  SPACE
.       C1050            77  20                          02402  00077 00020  STOP
.       C1051 PACK       ENTRY                           02403  61000 00000  PACK 5 CHARACTERS PER WORD
.       C1052            STR  A*L(STOREPACK)             02404  15010 02431  FWA OF PACKED TABLE
.       01053            PUT  L(PACK)*L(PUTCOUNT)        02405  10010 02403
                                                         02406  14010 02407
.       C1054 PUTCOUNT   PUT  W(0)*W(WORDCOUNT)          02407  10030 00000
                                                         02410  14030 02435
```

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CAROS    LI IO LABEL       TA STATEMENT                                LOC    F JKB Y      NOTES

   .     01055               RPL   Y+1*L(PACK)                       02411  36010 02403  INOEX RETURN POINT
   .     01056               CL    B3*                               02412  12300 00000  CLEAR WORO COUNTER
   .     01057               PUT   L(WOROCOUNT1*L(GETCHAR)           02413  10010 02435
                                                                     02414  14010 02426
   .     01060               ENT   Q*U(WOROCOUNT)                    02415  10020 02435  CHARACTER COUNT
   .     01061               CL    A*                                02416  11000 00000
   .     01062               OIV   5                                 02417  23000 00005  (CHARACTER COUNT)/5
   .     01063               SUB   Q*1                               02420  27000 00001  PACKEO WORO COUNT MINUS ONE
   .     01064               STR   Q*L(LOOPLIMIT21                   02421  14010 02432
   .     01065               CL    B4*                               02422  12400 00000  CLEAR CHARACTER COUNTER
   .     01066 LOOPSTART2    ENT   B5*4                              02423  12500 00004  SET TO LOOP FIVE TIMES
   .     01067               CL    A*                                02424  11000 00000
   .     01070 LOOP2         LSH   A*6                               02425  06000 00006
   .     01071 GETCHAR       SEL   SET*U(B4)                         02426  50024 00000  AOO NEXT CHARACTER
   .     01072               BSK   B4*77777                          02427  71400 77777  INOEX UNPACK TABLE
   .     01073               BJP   B5*LOOP2                          02430  72500 02425  FINISHEO THIS WORO...
   .     01074 STOREPACK     STR   A*W(B3)                           02431  15033 00000  YES.   STORE UNPACKEO WORO
   .     01075 LOOPLIMIT2    BSK   B3*0                              02432  71300 00000  FINISHEO STORING PACKEO WOROS.
                                                                                          ..
   .     01076               JP    LOOPSTART2                        02433  61000 02423  NO
   .     01077               EXIT                                    02434  61010 02403  YES.
   .     01100 WOROCOUNT     0     0                                 02435  00000 00000
   .     01101               COMMENT   MAGNETIC                                         TAPE EXTERNAL FUNCTION COOES W
                                                                                          /INTERRUPT
   .     01102 REWF0         30100     EINPUT                        02436  30100 00004  REWINO F0 INPUT
   .     01103 REWBC0        30100     AUSPUT                        02437  30100 00010  REWINO BC0 OUTPUT
   .     01104 ROF0          52000     EINPUT                        02440  52000 00004  REAO F0 INPUT (BINARY A01
   .     01105 BSF0          30300     EINPUT                        02441  30300 00004  BACKSPACE F0 INPUT
   .     01106 EOFBC0        12300     AUSPUT                        02442  12300 00010  WRITE ENO OF FILE ON BC0 TAPE
                                                                                          H0
   .     01107 REWBCOWI      31100     AUSPUT                        02443  31100 00010  REWINO BC0 OUTPUT W/INTERLOCK

   .     01110 REWFOWI       31100     EINPUT                        02444  31100 00004  REWINO F0 INPUT W/INTERLCOK
   .     01111 WRBC0         12200     AUSPUT                        02445  12200 00010  WRITE BC0 OUTPUT H0
   .     01112 BSBC0         30300     AUSPUT                        02446  30300 00010  BACKSPACE BC0 OUTPUT
   .     01113 ERASEBC0      10300     AUSPUT                        02447  10300 00010  ERASE FORWARO BCD OUTPUT
   .     01114               RESERVE   1                             02450  00000 00000
                                                                     02451  73737 37373
                                                                     02452  12231 12413

ENO OF LISTING
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..... SPURT OUTPUT NO. 211 .....

LIST210 MATHIASEN*8/21/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
A$$$$$1111	00077	A$$$$$1112	02451	A$$$$$1113	00134
A$$$$$1114	00143	A$$$$$1115	02452	A$$$$$1116	00325
A$$$$$1117	00337	A$$$$$1118	00346	AUSPUT	00010
BACK	01350	BADMCH	01733	BCOIMAGE	00732
BSBCO	02446	BSFO	02441	BUFFERPRNT	02060
COCTTOFO	01651	CONTCAR	00245	CONTINUE	00051
COUNT	02302	COUNTER	02256	CARRIAGEC	00764
CHANNEL	01761	CHANNEL1	01762	CHANNEL2	01763
CHECK211	00307	CHECK212	00363	OOUBLESP	01167
CICTIONARY	02303	EOFBCO	02442	EOFMESSAGE	01515
EOFMSG	01512	EINPUT	00004	ENOOFTAPM	01675
ENDTAPE	01747	ENOTAPEM	01704	ENDTAPU	01712
ERASE	01740	ERASEBCO	02447	EXCESS60	01666
FORTYFIVE	01332	FOSTATCOOE	01431	FOTAPEPAR	01477
FINISH	01541	FIRSTPAGE	00115	FRECORO	00412
GETONELINE	00256	GETCHAR	02426	GETPACK	02245
HUNCREOS	00222	INBUFFER	01340	INITIAL	00000
INITPRINT1	01310	INITPRINT2	01323	INPUTAPENO	01670
INTERJUMP	01347	INTERLOCK	01351	INTERLOCKP	01356
INTERLCK	01756	INTERRUPT	01725	INTJUMP	01732
ITISRIGHT	00313	JPPRINTOVR	02056	KOPTION1	01600
KOPTION2	01613	KOPTION3	01621	KEYJUMPS	01532
LOOP1	02246	LOOP2	02425	LOOPLIMIT	02253
LOOPLIMIT2	02432	LOCPSTART	02244	LOOPSTART2	02423
LOCKP	01364	L210	01520	L211	01521
L212	01522	LINE	00701	LINELOC	00242
LINESPERPG	00174	LISTOVER	01563	LISTEO	01635
LISTLABEL	00354	LISTLINE	00151	MOVELINE	00304
MACHERR	01637	MACHERROR	01641	MACHFAULT	01412
MAKEUPHEAO	00124	NOOVERFLOW	00213	NEWTAPE	02005
NEXTJOB	01536	PACK	02403	PAGE	00226
PAGEHEA01	01171	PAGEHEA02	01223	PAGEHEA03	01255
PAGEPRINT	00160	PAGINATION	00175	PARITY	01433
PARITYMSG	01451	PMSG	01463	PRINT	02032
PRINTOVER	02055	PRINTBUFFC	02057	PUTCOUNT	02407
PUTCOUNTER	02232	ROFO	02440	READTAPE	01333
REQUNDANT	01736	REWBCO	02437	REWBCOWI	02443
REWFO	C2436	REWFOWI	02444	SETCARRIAG	00234
SETLINE	00236	SETUP	02035	SINGLESP	01170
SKIPLINE	01307	STOREPACK	02431	STOREUNPAK	02250
STATCUOE	01764	STATUS	01667	STATUSCOOE	01372
STRB2	C0272	STRCHAN	01557	TOPOFPAGE	01166
TAPEOONE	01562	TAPEEXTINT	00035	TAPEHANOLE	01546
TAPEPARMSG	01464	TENS	00223	TESTLINENO	00260
THOUSANCS	00221	TRANS	02262	TRANS1	02272
TRANS2	02275	TRANS3	02276	TRANSLATE	02257
TRYAGAIN	01446	UNDERSTAND	00230	UNIT	00224
UNIT210	01636	UNITNO	01424	UNITNOINT	01371
UNPACK	02226	UNPACKCOOE	02042	UNPACKIMG	00765
WORDCOUNT	C2435	WAKEUP	02016	WHEREAT	00306
WRONGTAPE	OC370	WRBCO	02445	WRITE	01713

..... SPURT OUTPUT NO. 211 .....

LIST210 MATHIASEN*8/21/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
WRITEOUT	01723	WRITEAGAIN	01717	WRITEEOF	01523
WRITESERVO	02004	WRTAPEMSG	00373		

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

LIST210 MATHIASEN•8/21/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
INITIAL	00000	EINPUT	00004	AUSPUT	00010
TAPEEXTINT	00035	CONTINUE	00051	A$$$$$1111	00077
FIRSTPAGE	00115	MAKEUPHEAD	00124	A$$$$$1113	00134
A$$$$$1114	00143	LISTLINE	00151	PAGEPRINT	00160
LINESPERPG	00174	PAGINATION	00175	NOOVERFLOW	00213
THOUSANDS	00221	HUNDREDS	00222	TENS	00223
UNIT	00224	PAGE	00226	UNDERSTAND	00230
SETCARRIAG	00234	SETLINE	00236	LINELOC	00242
CONTCAR	00245	GETONELINE	00256	TESTLINENO	00260
STRB2	00272	MOVELINE	00304	WHEREAT	00306
CHECK211	00307	ITISRIGHT	00313	A$$$$$1116	00325
A$$$$$1117	00337	A$$$$$1118	00346	LISTLABEL	00354
CHECK212	00363	WRONGTAPE	00370	WRTAPEMSG	00373
FRECORD	00412	LINE	00701	BCDIMAGE	00732
CARRIAGEC	00764	UNPACKIMG	00765	TOPOFPAGE	01166
DOUBLESP	01167	SINGLESP	01170	PAGEHEAD1	01171
PAGEHEAD2	01223	PAGEHEAD3	01255	SKIPLINE	01307
INITPRINT1	01310	INITPRINT2	01323	FORTYFIVE	01332
READTAPE	01333	INBUFFER	01340	INTERJUMP	01347
BACK	01350	INTERLOCK	01351	INTERLOCKP	01356
LOCKP	01364	UNITNOINT	01371	STATUSCODE	01372
MACHFAULT	01412	UNITNO	01424	FOSTATCODE	01431
PARITY	01433	TRYAGAIN	01446	PARITYMSG	01451
PMSG	01463	TAPEPARMSG	01464	FOTAPEPAR	01477
EOFMSG	01512	EOFMESSAGE	01515	L210	01520
L211	01521	L212	01522	WRITEEOF	01523
KEYJUMPS	01532	NEXTJOB	01536	FINISH	01541
TAPEHANDLE	01546	STRCHAN	01557	TAPEDONE	01562
LISTOVER	01563	KOPTION1	01600	KOPTION2	01613
KOPTION3	01621	LISTEO	01635	UNIT210	01636
MACHERR	01637	MACHERROR	01641	COCTTOFD	01651
EXCESS60	01666	STATUS	01667	INPUTAPENO	01670
ENDOFTAPM	01675	ENDTAPEM	01704	ENOTAPU	01712
WRITE	01713	WRITEAGAIN	01717	WRITEOUT	01723
INTERRUPT	01725	INTJUMP	01732	BADMCH	01733
REDUNDANT	01736	ERASE	01740	ENDTAPE	01747
INTERLCK	01756	CHANNEL	01761	CHANNEL1	01762
CHANNEL2	01763	STATCODE	01764	WRITESERVO	02004
NEWTAPE	02005	WAKEUP	02016	PRINT	02032
SETUP	02035	UNPACKCODE	02042	PRINTOVER	02055
JPPRINTOVR	02056	PRINTBUFFC	02057	BUFFERPRNT	02060
UNPACK	02226	PUTCOUNTER	02232	LOOPSTART	02244
GETPACK	02245	LOOP1	02246	STOREUNPAK	02250
LOOPLIMIT	02253	COUNTER	02256	TRANSLATE	02257
TRANS	02262	TRANS1	02272	TRANS2	02275
TRANS3	02276	COUNT	02302	DICTIONARY	02303
PACK	02403	PUTCOUNT	02407	LOOPSTART2	02423
LOOP2	02425	GETCHAR	02426	STOREPACK	02431
LOOPLIMIT2	02432	WORDCOUNT	02435	REWFD	02436
REWBCD	02437	RDFD	02440	BSFD	02441
EOFBCD	02442	REWBCDWI	02443	REWFDWI	02444

..... SPURT OUTPUT NO. 212 .....

LIST210 MATHIASEN•8/21/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
WRBCD	02445	BSBCD	02446	ERASEBCD	02447
A$$$$$1112	02451	A$$$$$1115	02452		

END OF LISTING

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CAROS    L1 ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

.        CC000 MGTAPEDUMP    PROGRAM   S.J.WHITE•09/25/64
.        CC001 UNITREQ       RPT  200•AOV                              00000  70100 00024
.        CC002               CL   W(TEMPORARY)                         00001  16030 01714
.        CC003               RPT  550•AOV                              00002  70100 00067
.        CC004               CL   W(TYPEMES)                           00003  16030 01477
.        CC005               CL   B1•                                  00004  12100 00000
.        CC006 INIT2         PIN  PRINTERA•60D•3•3                     00005  64120 00140
                                                                       00006  41414 36061
                                                                       00007  02145 00000
.        CC007               CKSTAT    INIT2                           00010  64110 00140
                                                                       00011  00006 00000
                                                                       00012  00000 00001
.        CC010               PUT  REQUN•L(CAUSEINTR+90)                00013  10000 01064
                                                                       00014  14010 01055
.        CC011               PUT  -0•W(PRINTAREA+250)                  00015  10040 77777
                                                                       00016  14030 01776
.        CC012               PUT  W(TAPEINTR)•W(35)                    00017  10030 02011
                                                                       00020  14030 00035
.        CC013               TYPET     $CR$$LF$STANDARD (A,B,C OR D)   00021  61000 00031
                             OR NO (N)
                                                                       00022  04033 03106
                                                                       00023  23110 62711
                                                                       00024  05510 65607
                                                                       00025  56100 52427
                                                                       00026  05114 00524
                                                                       00027  27052 32405
                                                                       00030  51234 00500
                                                                       00031  64120 00142
                                                                       00032  00000 00042
                                                                       00033  00000 00022
.        CC014               RJP  BRINGIN                              00034  65000 01612
.        CC015               COM  MASK•100•APOS                        00035  43600 00012
.        CC016               COM  MASK•6•APOS                          00036  43600 00006
.        CC017               JP   BAD                                  00037  61000 00041
.        CC020               JP   GOOD                                 00040  61000 00044
.        CC021 BAD           COM  MASK•23•AZERO                        00041  43400 00023
.        CC022               JP   TRYAGAIN                             00042  61000 01422
.        CC023               JP   GOGO                                 00043  61000 00060
.        CC024 GOOD          SUB  A•6                                  00044  21000 00006
.        CC025               ENT  B3•A                                 00045  12370 00000
.        CC026               ENT  A•L(WHUNIT+B3)                       00046  11013 01342
.        CC027               STR  A•L(RDFUNCWD)                        00047  15010 01727
.        CC030               PUT  52000•U(RDFUNCWD)                    00050  10000 52000
                                                                       00051  14020 01727
.        CC031               PUT  3•W(TYPEFORM)                        00052  10000 00003
                                                                       00053  14030 01730
.        CC032               PUT  777•L(CNT3)                          00054  10000 00777
                                                                       00055  14010 01742
.        CC033               RPL  Y+1•W(FILECT)                        00056  36030 01732
.        CC034               JP   PROCESSER                            00057  61000 00423
.        CC035 GOGO          TYPET     $CR$$LF$                        00060  61000 00062
                                                                       00061  04030 50500
                                                                       00062  64120 00142
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                    ..........  SPURT OUTPUT NO. 210  ..........
                              MGTAPEDUMP        S.J.WHITE*09/25/64

CARDS    LI IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

                                                                     00063  00000 00004
                                                                     00064  00000 00061
     .   CC036            TYPET     TAPE-DENSITY-PARITY-FORMAT-SKF00065  61000 00102
                          ILE-SKREC-OPFILE-OPREC-REW
                                                                     00066  31062 51241
                                                                     00067  11122 33016
                                                                     00070  31364 12506
                                                                     00071  27163 13641
                                                                     00072  13242 72206
                                                                     00073  31413 02013
                                                                     00074  16211 24130
                                                                     00075  20271 21041
                                                                     00076  11251 31621
                                                                     00077  12411 12527
                                                                     00100  12104 12712
                                                                     00101  34050 50505
                                                                     00102  64120 00142
                                                                     00103  00000 00074
                                                                     00104  00000 00066
     .   CC037 GOG01      TYPET     $CR$                            00105  61000 00107
                                                                     00106  04050 00000
                                                                     00107  64120 00142
                                                                     00110  00000 00002
                                                                     00111  00000 00106
     .   CC040            ENT   A*L(TYPEMESSW1*ANOT                 00112  11510 01744
     .   CC041            JP    SEEUNIT                             00113  61000 00120
     .   CC042            OUT   C2*W(TYPEMESBUF1                    00114  74130 01476
     .   CC043            JP    $*C2*ACTIVEOUT                      00115  63100 00115
     .   CC044            CL    L(TYPEMESSW)                        00116  16010 01744
     .   CC045 GOG02      JP    0                                   00117  61000 00000
     .   CC046 SEEUNIT    PUT   ZW01*L(GOG021                       00120  10000 00131
                                                                     00121  14010 00117
     .   CC047            PUT   TYPEMES+1*U(TYPEMESBUF1             00122  10000 01500
                                                                     00123  14020 01476
     .   CC050            OUT   C2*W(SPACE2)                        00124  74130 01462
     .   CC051            JP    $*C2*ACTIVEOUT                      00125  63100 00125
     .   CC052            ENT   A*5                                 00126  11000 00005
     .   CC053            RPT   2*AOV                               00127  70100 00002
     .   CC054            STR   A*W(TYPEMES1                        00130  15030 01477
     .   CC055 ZWD1       RJP   BRINGIN                             00131  65000 01612
     .   CC056            COM   MASK*10D*APOS                       00132  43600 00012
     .   CC057            COM   MASK*6*APOS                         00133  43600 00006
     .   CC060            JP    SERVOERR                            00134  61000 01346
     .   CC061            STR   A*W(TYPEMES+21                      00135  15030 01501
     .   CC062            PUT   ZW02*L(GOG021                       00136  10000 00154
                                                                     00137  14010 00117
     .   CC063            PUT   TYPEMES+7*U(TYPEMESBUF1             00140  10000 01506
                                                                     00141  14020 01476
     .   CC064            SUB   A*6                                 00142  21000 00006
     .   CC065            ENT   B3*A                                00143  12370 00000
     .   CC066            ENT   A*L(WHUNIT+B31                      00144  11013 01342
     .   CC067            STR   A*L(REWINO)                         00145  15010 01721
     .   CC070            STR   A*L(RDFUNCW0)                       00146  15010 01727
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CARDS    L1 ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     CC071 OENSITYREQ    OUT  C2•W(SPACE5)                       00147  74130 01465
   .     CC072               JP   $•C2•ACTIVEOUT                     00150  63100 00150
   .     CC073               ENT  A•5                                00151  11000 00005
   .     CC074               RPT  5•AOV                              00152  70100 00005
   .     CC075               STR  A•W(TYPEMES+3)                     00153  15030 01502
   .     CC076 ZW02          RJP  BRINGIN                            00154  65000 01612
   .     CC077               COM  MASK•15•AZERO                      00155  43400 00015
   .     CC100               JP   SEEIFLOW                           00156  61000 00162
   .     CC101               PUT  1•W(OENSITYSW)                     00157  10000 00001
                                                                     00160  14030 01726
   .     CC102               JP   AHEA02                             00161  61000 00166
   .     CC103 SEEIFLOW      ENT  Q•77                               00162  10000 00077
   .     CC104               COM  MASK•21•AZERO                      00163  43400 00021
   .     CC105               JP   DENERR                             00164  61000 01361
   .     CC106               CL   W(DENSITYSW)                       00165  16030 01726
   .     CC107 AHEA02        STR  A•W(TYPEMES+80)                    00166  15030 01507
   .     CC110               PUT  ZW03•L(GOG02)                      00167  10000 00200
                                                                     00170  14010 00117
   .     CC111               PUT  TYPEMES+15D•U(TYPEMESBUF)          00171  10000 01516
                                                                     00172  14020 01476
   .     CC112               OUT  C2•W(SPACE7)                       00173  74130 01467
   .     CC113               JP   $•C2•ACTIVEOUT                     00174  63100 00174
   .     CC114               ENT  A•5                                00175  11000 00005
   .     CC115               RPT  7•AOV                              00176  70100 00007
   .     CC116               STR  A•W(TYPEMES+90)                    00177  15030 01510
   .     CC117 ZW03          RJP  BRINGIN                            00200  65000 01612
   .     CC12C               COM  MASK•12•AZERO                      00201  43400 00012
   .     CC121               JP   SEEIFOOD                           00202  61000 00213
   .     CC122               ENT  A•W(OENSITYSW)•AZERO                00203  11430 01726
   .     CC123               JP   HIOEN                              00204  61000 00210
   .     CC124               PUT  53200•U(ROFUNCW0)                  00205  10000 53200
                                                                     00206  14020 01727
   .     CC125               JP   AHEA03                             00207  61000 00225
   .     CC126 HIDEN         PUT  52200•U(ROFUNCW0)                  00210  10000 52200
                                                                     00211  14020 01727
   .     CC127               JP   AHEA03                             00212  61000 00225
   .     CC130 SEEIFOOO      ENT  Q•77                               00213  10000 00077
   .     CC131               COM  MASK•24•AZERO                      00214  43400 00024
   .     CC132               JP   PARERR                             00215  61000 01374
   .     CC133               ENT  A•W(OENSITYSW)•AZERC                00216  11430 01726
   .     CC134               JP   KOOOHIOEN                          00217  61000 00223
   .     CC135               PUT  53000•U(ROFUNCW0)                  00220  10000 53000
                                                                     00221  14020 01727
   .     CC136               JP   AHEA03                             00222  61000 00225
   .     CC137 KCODHIOEN     PUT  52000•U(ROFUNCW0)                  00223  10000 52000
                                                                     00224  14020 01727
   .     CC140 AHEA03        PUT  L(TEMPORARY)•W(TYPEMES+160)        00225  10010 01714
                                                                     00226  14030 01517
   .     CC141               PUT  ZW04•L(GOG02)                      00227  10000 00240
                                                                     00230  14010 00117
   .     CC142               PUT  TYPEMES+23D•U(TYPEMESBUF)          00231  10000 01526
                                                                     00232  14020 01476
   .     CC143               OUT  C2•W(SPACE7)                       00233  74130 01467
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CAROS    LI ID LABEL      TA STATEMENT                          LOC    F JKB Y      NOTES

   .     CC144            JP   $•C2•ACTIVEOUT                  00234  63100 00234
   .     CC145            ENT  A•5                              00235  11000 00005
   .     CC146            RPT  7•AOV                            00236  70100 00007
   .     CC147            STR  A•W(TYPEMES+170)                 00237  15030 01520
   .     CC150 ZHC4       RJP  BRINGIN                          00240  65000 01612
   .     CC151            COM  MASK•7•AZERO                     00241  43400 00007
   .     CC152            JP   SEEIFFORO                        00242  61000 00246
   .     CC153            PUT  1•W(TYPEFORM)                    00243  10000 00001
                                                                00244  14030 01730
   .     CC154            JP   AHEA04                           00245  61000 00261
   .     CC155 SEEIFFORO  ENT  Q•77                             00246  10000 00077
   .     CC156            COM  MASK•13•AZERO                    00247  43400 00013
   .     CC157            JP   SEEIFOCT                         00250  61000 00254
   .     CC16C            PUT  2•W(TYPEFORM)                    00251  10000 00002
                                                                00252  14030 01730
   .     CC161            JP   AHEA04                           00253  61000 00261
   .     CC162 SEEIFOCT   ENT  Q•77                             00254  10000 00077
   .     CC163            COM  MASK•24•AZERO                    00255  43400 00024
   .     CC164            JP   FORMERR                          00256  61000 01407
   .     CC165            PUT  3•W(TYPEFORM)                    00257  10000 00003
                                                                00260  14030 01730
   .     CC166 AHEAC4     STR  A•W(TYPEMES+240)                 00261  15030 01527
   .     CC167            PUT  ZIP1•L(GOGO2)                    00262  10000 00273
                                                                00263  14010 00117
   .     CC170            PUT  TYPEMES+29D•U(TYPEMESBUF)        00264  10000 01534
                                                                00265  14020 01476
   .     CC171            OUT  C2•W(SPACE5)                     00266  74130 01465
   .     CC172            JP   $•C2•ACTIVEOUT                   00267  63100 00267
   .     CC173            ENT  A•5                              00270  11000 00005
   .     CC174            RPT  5•AOV                            00271  70100 00005
   .     CC175            STR  A•W(TYPEMES+250)                 00272  15030 01530
   .     CC176 ZIP1       RJP  BRINGIN                          00273  65000 01612
   .     CC177            COM  MASK•71•APOS                     00274  43600 00071
   .     CC200            COM  MASK•60•APOS                     00275  43600 00060
   .     CC201            JP   NOOIG                            00276  61000 01431
   .     CC202            STR  A•L(XMANY+B1)                    00277  15011 01473
   .     CC203            STR  A•W(TYPEMES+30C+B1)              00300  15031 01535
   .     CC204            BSK  B1•2                             00301  71100 00002
   .     CC205            JP   ZIP1                             00302  61000 00273
   .     CC206            PUT  ZIP2•L(GOGO2)                    00303  10000 00320
                                                                00304  14010 00117
   .     CC207            PUT  TYPEMES+35D•U(TYPEMESBUF)        00305  10000 01542
                                                                00306  14020 01476
   .     CC210            RJP  CVOTO                            00307  65000 01566
   .     CC211            STR  Q•L(CNT1)                        00310  14010 01740
   .     CC212            STR  Q•W(FILECT)                      00311  14030 01732
   .     CC213            RPL  Y+1•W(FILECT)                    00312  36030 01732
   .     CC214 AHEAC5     OUT  C2•W(SPACE3)                     00313  74130 01463
   .     CC215            JP   $•C2•ACTIVEOUT                   00314  63100 00314
   .     CC216            ENT  A•5                              00315  11000 00005
   .     CC217            RPT  3•AOV                            00316  70100 00003
   .     CC220            STR  A•W(TYPEMES+330)                 00317  15030 01540
   .     CC221 ZIP2       RJP  BRINGIN                          00320  65000 01612
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CARDS    L1 IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     CC222            COM  MASK*71*APOS                          00321  43600 00071
   .     CC223            COM  MASK*60*APOS                          00322  43600 00060
   .     CC224            JP   NOOIG                                 00323  61000 01431
   .     CC225            STR  A*L(XMANY+B1)                         00324  15011 01473
   .     CC226            STR  A*W(TYPEMES+360+B1)                   00325  15031 01543
   .     CC227            BSK  B1*2                                  00326  71100 00002
   .     CC230            JP   ZIP2                                  00327  61000 00320
   .     CC231            PUT  ZIP3*L(GOGO2)                         00330  10000 00344
                                                                      00331  14010 00117
   .     CC232            PUT  TYPEMES+420*U(TYPEMESBUF)             00332  10000 01551
                                                                      00333  14020 01476
   .     CC233            RJP  CVOTO                                 00334  65000 01566
   .     CC234            STR  Q*L(CNT2)                             00335  14010 01741
   .     CC235            STR  Q*W(RECORONO)                         00336  14030 01733
   .     CC236 AHEAD6     OUT  C2*W(SPACE4)                          00337  74130 01464
   .     CC237            JP   $*C2*ACTIVEOUT                        00340  63100 00340
   .     CC240            ENT  A*5                                   00341  11000 00005
   .     CC241            RPT  4*AOV                                 00342  70100 00004
   .     CC242            STR  A*W(TYPEMES+390)                      00343  15030 01546
   .     CC243 ZIP3       RJP  BRINGIN                               00344  65000 01612
   .     CC244            COM  MASK*71*APOS                          00345  43600 00071
   .     CC245            COM  MASK*60*APOS                          00346  43600 00060
   .     CC246            JP   NOOIG                                 00347  61000 01431
   .     CC247            STR  A*L(XMANY+B1)                         00350  15011 01473
   .     CC250            STR  A*W(TYPEMES+430+B1)                   00351  15031 01552
   .     CC251            BSK  B1*2                                  00352  71100 00002
   .     CC252            JP   ZIP3                                  00353  61000 00344
   .     CC253            PUT  ZIP4*L(GOGO2)                         00354  10000 00367
                                                                      00355  14010 00117
   .     CC254            PUT  TYPEMES+480*U(TYPEMESBUF)             00356  10000 01557
                                                                      00357  14020 01476
   .     CC255            RJP  CVOTO                                 00360  65000 01566
   .     CC256            STR  Q*L(CNT3)                             00361  14010 01742
   .     CC257 AHEAD7     OUT  C2*W(SPACE3)                          00362  74130 01463
   .     CC260            JP   $*C2*ACTIVEOUT                        00363  63100 00363
   .     CC261            ENT  A*5                                   00364  11000 00005
   .     CC262            RPT  3*AOV                                 00365  70100 00003
   .     CC263            STR  A*W(TYPEMES+460)                      00366  15030 01555
   .     CC264 ZIP4       RJP  BRINGIN                               00367  65000 01612
   .     CC265            COM  MASK*71*APOS                          00370  43600 00071
   .     CC266            COM  MASK*60*APOS                          00371  43600 00060
   .     CC267            JP   NOOIG                                 00372  61000 01431
   .     CC270            STR  A*L(XMANY+B1)                         00373  15011 01473
   .     CC271            STR  A*W(TYPEMES+490+B1)                   00374  15031 01560
   .     CC272            BSK  B1*2                                  00375  71100 00002
   .     CC273            JP   ZIP4                                  00376  61000 00367
   .     CC274            PUT  ZWOS*L(GOGO2)                         00377  10000 00412
                                                                      00400  14010 00117
   .     CC275            PUT  TYPEMES+540*U(TYPEMESBUF)             00401  10000 01565
                                                                      00402  14020 01476
   .     CC276            RJP  CVOTO                                 00403  65000 01566
   .     CC277            STR  Q*L(CNT4)                             00404  14010 01743
   .     CC300 AHEAD8     OUT  C2*W(SPACE3)                          00405  74130 01463
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CAROS	LI	IC	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC301				JP $*C2*ACTIVEOUT	00406	63100	00406		
.	CC302				ENT A*5	00407	11000	00005		
.	CC303				RPT 3*AOV	00410	70100	00003		
.	CC304				STR A*W(TYPEMES+520)	00411	15030	01563		
.	CC305	ZWD5			RJP BRINGIN	00412	65000	01612		
.	CC306				COM MASK*23*ANOT	00413	43500	00023		
.	CC307				JP AHEA09	00414	61000	00422		
.	CC310				COM MASK*36*AZERO	00415	43400	00036		
.	CC311				JP ANSREW	00416	61000	01443		
.	CC312				PUT 30100*U(REWINO)	00417	10000	30100		
						00420	14020	01721		
.	CC313				JP PROCESSER	00421	61000	00423		
.	CC314	AHEA09			CL U(REWINO)	00422	16020	01721		
.	CC315	PROCESSER			RPT 550*AOV	00423	70100	00067		
.	CC316				CL W(TYPEMES)	00424	16030	01477		
.	CC317				TYPET $CR$$LF$	00425	61000	00427		
						00426	04030	50500		
						00427	64120	00142		
						00430	00000	00004		
						00431	00000	00426		
.	CC320				IN C2*W(ATTENIN)	00432	73130	01471		
.	CC321				ENT A*U(REWINO)*ANOT	00433	11520	01721		
.	CC322				JP FORWARO1	00434	61000	00441		
.	CC323				EX-FCT C15*W(REWINO)	00435	13670	01721		
.	CC324	WAIT1			JP WAIT1	00436	61000	00436		
.	CC325				EX-FCT C15*W(REWINO)	00437	13670	01721		
.	CC326	WAIT1A			JP WAIT1A	00440	61000	00440		
.	CC327	FORWARD1			RJP ATTENTION	00441	65000	01601		
.	CC330				ENT A*W(CNT1)*ANOT	00442	11530	01740		
.	CC331				JP FORWARO2	00443	61000	00453		
.	CC332				IN C15*W(BUFFERIN)	00444	73670	02034		
.	CC333				NO-OP	00445	12000	00000		
.	CC334				EX-FCT C15*W(ROFUNCWO)	00446	13670	01727		
.	CC335	WAIT2			JP WAIT2	00447	61000	00447		
.	CC336				JP FORWARO1	00450	61000	00441		
.	CC337				RPL Y-1*W(CNT1)	00451	37030	01740		
.	CC340				JP FORWARO1	00452	61000	00441		
.	CC341	FORWARO2			RJP ATTENTION	00453	65000	01601		
.	CC342				ENT A*W(CNT2)*ANOT	00454	11530	01741		
.	CC343				JP FORWARO3	00455	61000	00464		
.	CC344				IN C15*W(BUFFERIN)	00456	73670	02034		
.	CC345				NO-OP	00457	12000	00000		
.	CC346				EX-FCT C15*W(ROFUNCWO)	00460	13670	01727		
.	CC347	WAIT3			JP WAIT3	00461	61000	00461		
.	CC350				RPL Y-1*W(CNT2)	00462	37030	01741		
.	CC351				JP FORWARO2	00463	61000	00453		
.	CC352	FORWARO3			RJP ATTENTION	00464	65000	01601		
.	CC353				ENT A*W(CNT3)*ANOT	00465	11530	01742		
.	CC354				JP FORWARO4	00466	61000	00511		
.	CC355				IN C15*W(BUFFERIN)	00467	73670	02034		
.	CC356				NO-OP	00470	12000	00000		
.	CC357				EX-FCT C15*W(ROFUNCWO)	00471	13670	01727		
.	CC360	WAIT4			JP WAIT4	00472	61000	00472		

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CARDS    L1 IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES
   .     CC361            JP   WORKONBUF                            00473  61000 00542
   .     CC362            RPL  Y-1*W(CNT3)*AZERO                    00474  37430 01742
   .     CC363            JP   $+2                                  00475  61000 00477
   .     CC364            JP   FORWAR04                             00476  61000 00511
   .     CC365            STR  B0*W(RECORDNO)                       00477  16030 01733
   .     CC366            RPL  Y+1*W(FILECT)                        00500  36030 01732
   .     CC367            MOVE 9D*FILEINFO*PRINTAREA                00501  12700 00010
                                                                     00502  10037 01662
                                                                     00503  14037 01745
                                                                     00504  72700 00502
   .     CC370            ENT  A*00020                              00505  11000 00020
   .     CC371            STR  A*U(PRNTPKT+11                       00506  15020 01230
   .     CC372            RJP  PRINTIT                              00507  65000 01225
   .     CC373            JP   FORWARD3                             00510  61000 00464
   .     CC374 FORWARD4   RJP  ATTENTION                            00511  65000 01601
   .     CC375            ENT  A*W(CNT4)*ANOT                       00512  11530 01743
   .     CC376            JP   FORWARD5                             00513  61000 00522
   .     CC377            IN   C15*W(BUFFERIN1                      00514  73670 02034
   .     CC400            NO-OP                                     00515  12000 00000
   .     CC401            EX-FCT    C15*W(RDFUNCW01                 00516  13670 01727
   .     CC402 WAIT5      JP   WAIT5                                00517  61000 00517
   .     CC403            RPL  Y-1*W(CNT41                          00520  37030 01743
   .     CC404            JP   WORKONBUF                            00521  61000 00542
   .     CC405 FORWARD5   PRINT     PRINTERA*0*0                    00522  64120 00140
                                                                     00523  00000 00061
                                                                     00524  03145 00000
                                                                     00525  11000 00000
   .     CC406            CKSTAT    FORWARD5                        00526  64110 00140
                                                                     00527  00523 00000
                                                                     00530  00000 00001
   .     CC407            TYPET     COMPLETED REQUEST               00531  61000 00536
                                                                     00532  10242 22521
                                                                     00533  12311 21105
                                                                     00534  27122 63212
                                                                     00535  30310 50505
                                                                     00536  64120 00142
                                                                     00537  00000 00024
                                                                     00540  00000 00532
   .     CC410            JP   UNITREQ                              00541  61000 00000
   .     CC411 WORKONBUF  ENT  A*L(115)                             00542  11010 00115
   .     CC412            SUB  A*L(BUFFERIN)                        00543  21010 02034
   .     CC413            STR  A*W(NUMWRDS1                         00544  15030 01731  NUMBER OF WORDS IN BUFFER
   .     CC414            RPL  Y-1*W(NUMWRDS1                       00545  37030 01731
   .     CC415            CL   B1*                                  00546  12100 00000
   .     CC416            CL   B2*                                  00547  12200 00000
   .     CC417            CL   B3*                                  00550  12300 00000
   .     CC420            CL   B4*                                  00551  12400 00000
   .     CC421 LCBCD      ENT  A*W(TYPEFORM)                        00552  11030 01730
   .     CC422            SUB  A*2*APOS                             00553  21600 00002
   .     CC423            JP   TYPEBCD                              00554  61000 00560  DATA IS LOW DEN BCD
   .     CC424            ENT  Q*A*ANOT                             00555  10570 00000  PSEUDO OPERATION
   .     CC425            JP   TYPEFD                               00556  61000 00615  DATA IS LOW DEN FD
   .     CC426            JP   TYPEOCT                              00557  61000 00635  DATA IS DOW DEN OCT
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CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC427		TYPEBCO	RPT	250*ADV	00560	70100	00031		
.	CC430			STR	B0*W(PRINTAREA)	00561	16030	01745		
.	CC431			ENT	Q*W(INPUTBUF+B2)	00562	10032	02035		
.	CC432			CL	A*	00563	11000	00000		
.	CC433			LSH	AQ*6	00564	07000	00006		
.	CC434			A00	A*CONVTAB	00565	20000	01242		
.	CC435			STR	A*L(NEXT1)	00566	15010	00567		
.	CC436		NEXT1	ENT	A*L(0)	00567	11010	00000		
.	CC437			LSH	A*240	00570	06000	00030		
.	CC440			STR	A*W(SAVEIT+B3)	00571	15033	01777		
.	CC441			BSK	B3*4	00572	71300	00004		
.	CC442			JP	TYPEBCO+3	00573	61000	00563		
.	CC443		NEXT2	ENT	Q*W(SAVEIT+B3)	00574	10033	01777		
.	CC444			LSH	AQ*6	00575	07000	00006		
.	CC445			BSK	B3*4	00576	71300	00004		
.	CC446			JP	NEXT2	00577	61000	00574		
.	CC447			STR	A*W(PRINTAREA+B1)	00600	15031	01745		
.	CC450			BSK	B1*240	00601	71100	00030		
.	CC451			JP	$+2	00602	61000	00604		
.	CC452			JP	NEXT3	00603	61000	00611		
.	CC453			BSK	B2*W(NUMWROS)	00604	71230	01731		
.	CC454			JP	TYPEBCO+2	00605	61000	00562		
.	CC455			CL	B1*	00606	12100	00000		
.	CC456			RJP	PRINT1T	00607	65000	01225		
.	CC457			JP	FORWARO3	00610	61000	00464		
.	CC460		NEXT3	RJP	PRINT1T	00611	65000	01225		
.	CC461			BSK	B2*W(NUMWROS)	00612	71230	01731		
.	CC462			JP	TYPEBCO	00613	61000	00560		
.	CC463			JP	FORWARO3	00614	61000	00464		
.	CC464		TYPEFO	RPT	250*ADV	00615	70100	00031		
.	CC465			STR	B0*W(PRINTAREA)	00616	16030	01745		
.	CC466			ENT	A*W(INPUTBUF+B2)	00617	11032	02035		
.	CC467			STR	A*W(PRINTAREA+B1)	00620	15031	01745		
.	CC470			BSK	B1*240	00621	71100	00030		
.	CC471			JP	$+2	00622	61000	00624		
.	CC472			JP	F1	00623	61000	00631		
.	CC473			BSK	B2*W(NUMWROS)	00624	71230	01731		
.	CC474			JP	TYPEFO+2	00625	61000	00617		
.	CC475			CL	B1*	00626	12100	00000		
.	CC476			RJP	PRINTIT	00627	65000	01225		
.	CC477			JP	FORWARO3	00630	61000	00464		
.	CC500		F1	RJP	PRINT1T	00631	65000	01225		
.	CC501			BSK	B2*W(NUMWROS)	00632	71230	01731		
.	CC502			JP	TYPEFO	00633	61000	00615		
.	CC503			JP	FORWARO3	00634	61000	00464		
.	CC504		TYPEOCT	PUT	W(FOZERO)*W(WOROBLOCK)	00635	10030	02012		
						00636	14030	02013		
.	CC505			STR	B0*W(NUMBER)	00637	16030	01720		
.	CC506			ENT	Q*W(FILECT)	00640	10030	01732		
.	CC507			ENT	B3*4	00641	12300	00004		
.	CC510		AMOD1	CL	A*	00642	11000	00000		
.	CC511			O1V	100	00643	23000	00012		
.	CC512			A00	A*60	00644	20000	00060		

SPURT OUTPUT NO. 210

MGTAPEOUMP S.J.WHITE*09/25/64

CAROS	LI ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC513			STR A*W(HOCTDEC+B3)	00645	15033	02004		
.	CC514			BJP B3*AMOD1	00646	72300	00642		
.	CC515			CL A*	00647	11000	00000		
.	CC516	AMOD2		LSH A*6	00650	06000	00006		
.	CC517			ADO A*W(HOCTDEC+B3)	00651	20033	02004		
.	CC520			BSK B3*4	00652	71300	00004		
.	CC521			JP AMOD2	00653	61000	00650		
.	CC522			STR A*W(FILENUMCT)	00654	15030	01675		
.	CC523			RPL Y+1*W(RECORONO)	00655	36030	01733		
.	CC524			ENT Q*W(RECORONO1	00656	10030	01733		
.	CC525			ENT B3*4	00657	12300	00004		
.	CC526	MOD1		CL A	00660	11000	00000		
.	CC527			DIV 10D	00661	23000	00012		
.	CC530			AOD A*60	00662	20000	00060		
.	CC531			STR A*W(HOCTDEC+B31	00663	15033	02004		
.	CC532			BJP B3*MOD1	00664	72300	00660		
.	CC533			CL A	00665	11000	00000		
.	CC534	MOD2		LSH A*6	00666	06000	00006		
.	CC535			ADO A*W(HOCTDEC+B3)	00667	20033	02004		
.	CC536			BSK B3*4	00670	71300	00004		
.	CC537			JP MOD2	00671	61000	00666		
.	CC540			STR A*W(RECNUMCT1	00672	15030	01702		
.	CC541			ENT Q*W(NUMWROS)	00673	10030	01731		
.	CC542			ADO Q*1	00674	26000	00001		
.	CC543			ENT B3*4	00675	12300	00004		
.	CC544	R2		CL A	00676	11000	00000		
.	CC545			DIV 10D	00677	23000	00012		
.	CC546			AOD A*480	00700	20000	00060		
.	CC547			STR A*W(HOCTOEC+B3)	00701	15033	02004		
.	CC550			BJP B3*R2	00702	72300	00676		
.	CC551			CL A	00703	11000	00000		
.	CC552	R3		LSH A*6	00704	06000	00006		
.	CC553			ADO A*W(HOCTOEC+B3)	00705	20033	02004		
.	CC554			BSK B3*4	00706	71300	00004		
.	CC555			JP R3	00707	61000	00704		
.	CC556			STR A*W(NOOFWRDS+11	00710	15030	01711		
.	CC557			MOVE 160*RECOROINFO*PRINTAREA	00711	12700	00017		
					00712	10037	01673		
					00713	14037	01745		
					00714	72700	00712		
.	CC560			ENT A*00030	00715	11000	00030		
.	CC561			STR A*U(PRNTPKT+11	00716	15020	01230		
.	CC562			RJP PRINTIT	00717	65000	01225		
.	CC563			MOVE 250*WORDINFO*PRINTAREA	00720	12700	00030		
					00721	10037	01631		
					00722	14037	01745		
					00723	72700	00721		
.	CC564			RJP PRINTIT	00724	65000	01225		
.	CC565	TYPEOCT1		RPT 250*AOV	00725	70100	00031		
.	CC566			STR B0*W(PRINTAREA1	00726	16030	01745		
.	CC567			RPT 160*AOV	00727	70100	00020		
.	CC570			STR B0*W(WORDBLOCK+1)	00730	16030	02014		
.	CC571			ENT A*W(SPECSW1*ANOT	00731	11530	01735		

SPURT OUTPUT NO. 210

MGTAPEDUMP S.J.WHITE*09/25/64

CARDS	LI IO LABEL	TA STATEMENT		LOC	F JKB Y	NOTES
.	CC572	JP	LOADBUF-1	00732	61000 00754	
.	CC573	ENT	Q*W(NUMBER)	00733	10030 01720	
.	CC574	ADD	Q*10	00734	26000 00010	
.	CC575	STR	Q*W(NUMBER)	00735	14030 01720	
.	CC576	LSH	Q*15D	00736	05000 00017	
.	CC577 THERE1	CL	A*	00737	11000 00000	
.	CC600	LSH	AQ*3	00740	07000 00003	
.	CC601	ADD	A*60	00741	20000 00060	
.	CC602	STR	A*W(HOCTDEC+B3)	00742	15033 02004	
.	CC603	BSK	B3*4	00743	71300 00004	
.	CC604	JP	THERE1	00744	61000 00737	
.	CC605 THERE2	CL	A*	00745	11000 00000	
.	CC606	LSH	A*6	00746	06000 00006	
.	CC607	ADD	A*W(HOCTDEC+B3)	00747	20033 02004	
.	CC610	BSK	B3*4	00750	71300 00004	
.	CC611	JP	THERE2+1	00751	61000 00746	
.	CC612	STR	A*W(WORDBLOCK)	00752	15030 02013	
.	CC613	JP	LOADBUF	00753	61000 00755	
.	CC614	RPL	Y+1*W(SPECSW)	00754	36030 01735	
.	CC615 LOADBUF	ENT	A*2	00755	11000 00002	
.	CC616	STR	A*W(VISA)	00756	15030 01717	
.	CC617	ENT	Q*W(INPUTBUF+B2)	00757	10032 02035	
.	CC620	CL	A*	00760	11000 00000	
.	CC621	LSH	AQ*3	00761	07000 00003	
.	CC622	ADD	A*60	00762	20000 00060	
.	CC623	STR	A*W(SAVEQ)	00763	15030 01736	
.	CC624	ENT	A*W(WORDBLOCK+1+B3)	00764	11033 02014	
.	CC625	LSH	A*6	00765	06000 00006	
.	CC626	ADD	A*W(SAVEQ)	00766	20030 01736	
.	CC627	STR	A*W(WORDBLOCK+1+B3)	00767	15033 02014	
.	CC630	BSK	B4*4	00770	71400 00004	
.	CC631	JP	LOADBUF+3	00771	61000 00760	
.	CC632	BSK	B3*15D	00772	71300 00017	
.	CC633	JP	MOREWRDS	00773	61000 01023	
.	CC634	ENT	B3*B3+1	00774	12303 00001	
.	CC635 THERE3	ENT	A*W(WORDBLOCK-1+B3)	00775	11033 02012	
.	CC636	STR	A*W(PRINTAREA+B1)	00776	15031 01745	
.	CC637	CL	A*	00777	11000 00000	
.	CC640	ENT	Q*W(WORDBLOCK+B3)	01000	10033 02013	
.	CC641	LSH	AQ*6	01001	07000 00006	
.	CC642	STR	A*W(PRINTAREA+1+B1)	01002	15031 01746	
.	CC643	LSH	AQ*30D	01003	07000 00036	
.	CC644	STR	A*W(PRINTAREA+2+B1)	01004	15031 01747	
.	CC645	ENT	B1*B1+3	01005	12101 00003	
.	CC646	ENT	B3*B3+1	01006	12303 00001	
.	CC647	BSK	B3*16D	01007	71300 00020	
.	CC650	JP	THERE3	01010	61000 00775	
.	CC651	ENT	A*W(WORDBLOCK+160)	01011	11030 02033	
.	CC652	STR	A*W(PRINTAREA+B1)	01012	15031 01745	
.	CC653	CL	B1*	01013	12100 00000	
.	CC654	ENT	A*00020	01014	11000 00020	
.	CC655	STR	A*U(PRNTPKT+1)	01015	15020 01230	
.	CC656	RJP	PRINTIT	01016	65000 01225	

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CARDS   L1 IC LABEL       TA STATEMENT                                  LOC    F JKB Y      NOTES

   .    CC657              BSK  B2*W(NUMWRDS)                          01017  71230 01731
   .    CC660              JP   TYPEOCT1                               01020  61000 00725
   .    CC661              STR  B0*W(SPECSW)                           01021  16030 01735
   .    CC662              JP   FORWARD3                               01022  61000 00464
   .    CC663 MCREWRDS     RPL  Y-1*W(VISA)*AZERO                      01023  37430 01717
   .    CC664              JP   LOADBUF+3                              01024  61000 00760
   .    CC665              BSK  B2*W(NUMWRDS)                          01025  71230 01731
   .    CC666              JP   LOADBUF                                01026  61000 00755
   .    CC667              CL   B1*                                    01027  12100 00000
   .    CC670              CL   B3*                                    01030  12300 00000
   .    CC671              ENT  B2*L(NUMWRDS)                          01031  12210 01731
   .    CC672              JP   THERE3-1                               01032  61000 00774
   .    CC673 INTERRUPT    RESERVE   1                                 01033  00000 00000
   .    CC674              RJP  SAVEALL                                01034  65000 01171
   .    CC675              STR  C15*W(SAVECHAN)                        01035  17670 01170
   .    CC676              ENT  A*U(SAVECHAN)                          01036  11020 01170
   .    CC677              RSH  A*11D                                  01037  02000 00013
   .    CC70C              ADD  A*CAUSEINTR                            01040  20000 01044
   .    CC701              STR  A*L(DOWN1)                             01041  15010 01043
   .    CC702              RIL                                         01042  60000 00000
   .    CC703 DOWN1        JP   0                                      01043  61000 00000
   .    CC704 CAUSEINTR    JP   RECYCLE                                01044  61000 01146  00
   .    CC705              JP   RECYCLE                                01045  61000 01146  04
   .    CC706              JP   RECYCLE                                01046  61000 01146  10
   .    CC707              JP   RECYCLE                                01047  61000 01146  14
   .    CC710              JP   RECYCLE                                01050  61000 01146  20
   .    CC711              JP   UNITREW                                01051  61000 01124  24
   .    CC712              JP   RECYCLE                                01052  61000 01146  30
   .    CC713              JP   RECYCLE                                01053  61000 01146  34
   .    CC714              JP   ENDREC                                 01054  61000 01117
   .    CC715              JP   REDUN                                  01055  61000 01064  44
   .    CC716              JP   RECYCLE                                01056  61000 01146  50
   .    CC717              JP   ENDFILE                                01057  61000 01121
   .    CC720              JP   ENDTAPE                                01060  61000 01107  60(EOT)
   .    CC721              JP   RECYCLE                                01061  61000 01146  64
   .    CC722              JP   ENDREC                                 01062  61000 01117
   .    CC723              JP   INTERLCK                               01063  61000 01126  74
   .    CC724 REDUN        TYPET     PARITY ERR-START REDO-KEY 1 IGO   01064  61000 01075
                           NORE$CR$
                                                                       01065  25062 71631
                                                                       01066  36051 22727
                                                                       01067  41303 10627
                                                                       01070  31052 71211
                                                                       01071  24412 01236
                                                                       01072  05610 51614
                                                                       01073  23242 71204
                                                                       01074  05050 00000
                                                                       01075  64120 00142
                                                                       01076  00000 00045
                                                                       01077  00000 01065
   .    CC725              JP   DOWN2*STOP                             01100  61400 01101
   .    CC726 DOWN2        JP   IGNORE*KEY1                            01101  61100 01103
   .    CC727              JP   UNITREQ                                01102  61000 00000
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CARDS    LI IC LABEL      TA STATEMENT                                    LOC    F JKB Y      NOTES

   .     CC730 IGNORE        PUT  ENDREC•L(CAUSEINTR+90)                 01103  10000 01117
                                                                         01104  14010 01055
   .     CC731               RJP  RESTOALL                               01105  65000 01204
   .     CC732               JP   ENDREC                                 01106  61000 01117
   .     CC733 ENDTAPE       TYPET     END OF TAPE$CR$                   01107  61000 01113
                                                                         01110  12231 10524
                                                                         01111  13053 10625
                                                                         01112  12040 00000
                                                                         01113  64120 00142
                                                                         01114  00000 00014
                                                                         01115  00000 01110
   .     CC734               JP   UNITREQ                                01116  61000 00000
   .     CC735 ENDREC        RPL  Y+1•L(INTERRUPT)                       01117  36010 01033
   .     CC736               JP   L(INTERRUPT)                           01120  61010 01033
   .     CC737 ENDFILE       RPL  Y+1•L(INTERRUPT)                       01121  36010 01033
   .     CC740               RPL  Y+1•L(INTERRUPT)                       01122  36010 01033
   .     CC741               JP   L(INTERRUPT)                           01123  61010 01033
   .     CC742 UNITREW       RPL  Y-1•L(INTERRUPT)                       01124  37010 01033
   .     CC743               JP   L(INTERRUPT)                           01125  61010 01033
   .     CC744 INTERLCK      TYPET     TAPE INTL FAILURE REPAIR HIT S01126  61000 01141
                             TART TO CONTINUE$CR$
                                                                         01127  31062 51205
                                                                         01130  16233 12105
                                                                         01131  13061 62132
                                                                         01132  27120 52712
                                                                         01133  25061 62705
                                                                         01134  15163 10530
                                                                         01135  31062 73105
                                                                         01136  31240 51024
                                                                         01137  23311 62332
                                                                         01140  12040 00000
                                                                         01141  64120 00142
                                                                         01142  00000 00057
                                                                         01143  00000 01127
   .     CC745               RJP  RESTOALL                               01144  65000 01204
   .     CC746               JP   ENDREC•STOP                            01145  61400 01117
   .     CC747 RECYCLE       TYPET     RECEIVED ABNORMAL INTERRUPT WI01146  61000 01163
                             LL CONTINUE PROCESSING$CR$
                                                                         01147  27121 01216
                                                                         01150  33121 10506
                                                                         01151  07232 42722
                                                                         01152  06210 51623
                                                                         01153  31122 72732
                                                                         01154  25310 53416
                                                                         01155  21210 51024
                                                                         01156  23311 62332
                                                                         01157  12052 52724
                                                                         01160  10123 03016
                                                                         01161  23140 40505
                                                                         01162  05050 00000
                                                                         01163  64120 00142
                                                                         01164  00000 00071
                                                                         01165  00000 01147
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CAROS    L1 ID LABEL      TA STATEMENT                              LOC    F JKB Y      NOTES
.        CC750            RJP  RESTOALL                           01166  65000 01204
.        CC751            JP   ENDREC                            01167  61000 01117
.        CC752 SAVECHAN   RESERVE  1                             01170  00000 00000
.        CC753 SAVEALL    ENTRY                                  01171  61000 00000
.        CC754            STR  B1•U(COMMON)                      01172  16120 01217
.        CC755            STR  B2•L(COMMON)                      01173  16210 01217
.        CC756            STR  B3•U(COMMON+1)                    01174  16320 01220
.        CC757            STR  B4•L(COMMON+1)                    01175  16410 01220
.        CC760            STR  B5•U(COMMON+2)                    01176  16520 01221
.        CC761            STR  B6•L(COMMON+2)                    01177  16610 01221
.        CC762            STR  B7•U(COMMON+3)                    01200  16720 01222
.        CC763            STR  A•W(COMMON+4)                     01201  15030 01223
.        CC764            STR  Q•W(COMMON+5)                     01202  14030 01224
.        CC765            EXIT                                   01203  61010 01171
.        CC766 RESTOALL   ENTRY                                  01204  61000 00000
.        CC767            ENT  B1•U(COMMON)                      01205  12120 01217
.        CC770            ENT  B2•L(COMMON)                      01206  12210 01217
.        CC771            ENT  B3•U(COMMON+1)                    01207  12320 01220
.        CC772            ENT  B4•L(COMMON+1)                    01210  12410 01220
.        CC773            ENT  B5•U(COMMON+2)                    01211  12520 01221
.        CC774            ENT  B6•L(COMMON+2)                    01212  12610 01221
.        CC775            ENT  B7•U(COMMON+3)                    01213  12720 01222
.        CC776            ENT  A•W(COMMON+4)                     01214  11030 01223
.        CC777            ENT  Q•W(COMMON+5)                     01215  10030 01224
.        C1000            EXIT                                   01216  61010 01204
.        C1001 COMMON     RESERVE  6                             01217  00000 00000
.        C1002 PRINTIT    ENTRY                                  01225  61000 00000
.        C1003            RJP  SAVEALL                           01226  65000 01171
.        01004 PRNTPKT    PRINT    PRINTERA•PRINTAREA•1          01227  64120 00140
                                                                 01230  00010 00061
                                                                 01231  03145 00000
                                                                 01232  11000 01745
.        C1005            CKSTAT   PRNTPKT                       01233  64110 00140
                                                                 01234  01230 00000
                                                                 01235  00000 00001
.        C1006            ENT  A•00010                           01236  11000 00010
.        01007            STR  A•U(PRNTPKT+1)                    01237  15020 01230
.        C1010            RJP  RESTOALL                          01240  65000 01204
.        C1011            EXIT                                   01241  61010 01225
.        C1012 CONVTAB    00   00                                01242  00000 00000
.        C1013            01   61                                01243  00001 00061
.        C1014            02   62                                01244  00002 00062
.        C1015            03   63                                01245  00003 00063
.        C1016            04   64                                01246  00004 00064
.        C1017            05   65                                01247  00005 00065
.        C1020            06   66                                01250  00006 00066
.        C1021            07   67                                01251  00007 00067
.        C1022            10   70                                01252  00010 00070
.        C1023            11   71                                01253  00011 00071
.        C1024            12   60                                01254  00012 00060
.        C1025            13   76                                01255  00013 00076
.        C1026            14   72                                01256  00014 00072
.        01027            15   00                                01257  00015 00000
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CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C1030			16	00	01260	00016	00000		
.	C1031			17	00	01261	00017	00000		
.	C1032			20	00	01262	00020	00000		
.	C1033			21	74	01263	00021	00074		
.	C1034			22	30	01264	00022	00030		
.	C1035			23	31	01265	00023	00031		
.	C1036			24	32	01266	00024	00032		
.	C1037			25	33	01267	00025	00033		
.	C1040			26	34	01270	00026	00034		
.	C1041			27	35	01271	00027	00035		
.	C1042			30	36	01272	00030	00036		
.	C1043			31	37	01273	00031	00037		
.	C1044			32	53	01274	00032	00053		
.	C1045			33	56	01275	00033	00056		
.	C1046			34	51	01276	00034	00051		
.	C1047			35	00	01277	00035	00000		
.	C1050			36	00	01300	00036	00000		
.	C1051			37	C0	01301	00037	00000		
.	C1052			40	41	01302	00040	00041		
.	C1053			41	17	01303	00041	00017		
.	C1054			42	20	01304	00042	00020		
.	C1055			43	21	01305	00043	00021		
.	C1056			44	22	01306	00044	00022		
.	C1057			45	23	01307	00045	00023		
.	C1060			46	24	01310	00046	00024		
.	C1061			47	25	01311	00047	00025		
.	C1062			50	26	01312	00050	00026		
.	C1063			51	27	01313	00051	00027		
.	C1064			52	00	01314	00052	00000		
.	C1065			53	47	01315	00053	00047		
.	C1066			54	47	01316	00054	00047		
.	C1067			55	00	01317	00055	00000		
.	C1070			56	00	01320	00056	00000		
.	C1071			57	00	01321	00057	00000		
.	C1072			60	42	01322	00060	00042		
.	C1073			61	06	01323	00061	00006		
.	C1074			62	07	01324	00062	00007		
.	C1075			63	10	01325	00063	00010		
.	C1076			64	11	01326	00064	00011		
.	C1077			65	12	01327	00065	00012		
.	C1100			66	13	01330	00066	00013		
.	C1101			67	14	01331	00067	00014		
.	C1102			70	15	01332	00070	00015		
.	C1103			71	16	01333	00071	00016		
.	C1104			72	42	01334	00072	00042		
.	C1105			73	75	01335	00073	00075		
.	C1106			74	40	01336	00074	00040		
.	C1107			75	00	01337	00075	00000		
.	C1110			76	00	01340	00076	00000		
.	C1111			77	00	01341	00077	00000		
.	C1112	WHUNIT		0	1	01342	00000	00001		
.	C1113			0	2	01343	00000	00002		
.	C1114			0	4	01344	00000	00004		

```
CARDS    LI IC LABEL      TA STATEMENT                              LOC    F JKB Y      NOTES
    .    C1115                0    10                              01345  00000 00010
    .    C1116 SERVOERR       TYPET     SERVO ERROR(A,B,C,D)        01346  61000 01353
                                                                    01347  30122 73324
                                                                    01350  05122 72724
                                                                    01351  27510 65607
                                                                    01352  56105 61140
                                                                    01353  64120 00142
                                                                    01354  00000 00024
                                                                    01355  00000 01347
    .    C1117                PUT  1*L(TYPEMESSW)                 01356  10000 00001
                                                                    01357  14010 01744
    .    C1120                JP   GOGO1                          01360  61000 00105
    .    C1121 DENERR         TYPET     DENSITY ERROR(H,L)        01361  61000 01366
                                                                    01362  11122 33016
                                                                    01363  31360 51227
                                                                    01364  27242 75115
                                                                    01365  56214 00505
                                                                    01366  64120 00142
                                                                    01367  00000 00024
                                                                    01370  00000 01362
    .    C1122                PUT  1*L(TYPEMESSW)                 01371  10000 00001
                                                                    01372  14010 01744
    .    C1123                JP   GOGO1                          01373  61000 00105
    .    C1124 PARERR         TYPET     PARITY ERROR(E,O)         01374  61000 01401
                                                                    01375  25062 71631
                                                                    01376  36051 22727
                                                                    01377  24275 11256
                                                                    01400  24400 50505
                                                                    01401  64120 00142
                                                                    01402  00000 00024
                                                                    01403  00000 01375
    .    C1125                PUT  1*L(TYPEMESSW)                 01404  10000 00001
                                                                    01405  14010 01744
    .    C1126                JP   GOGO1                          01406  61000 00105
    .    C1127 FORMERR        TYPET     FORMAT ERROR(B,E,O)       01407  61000 01414
                                                                    01410  13242 72206
                                                                    01411  31051 22727
                                                                    01412  24275 10756
                                                                    01413  13562 44005
                                                                    01414  64120 00142
                                                                    01415  00000 00024
                                                                    01416  00000 01410
    .    C1130                PUT  1*L(TYPEMESSW)                 01417  10000 00001
                                                                    01420  14010 01744
    .    C1131                JP   GOGO1                          01421  61000 00105
    .    C1132 TRYAGAIN       TYPET     TRY AGAIN                 01422  61000 01425
                                                                    01423  31273 60506
                                                                    01424  14061 62305
                                                                    01425  64120 00142
                                                                    01426  00000 00012
                                                                    01427  00000 01423
    .    C1133                JP   UNITREQ                        01430  61000 00000
    .    C1134 NCDIG          TYPET     NUM PLS                   01431  61000 01434
```

CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	E	JKB	Y	NOTES
					01432	23322	20525		
					01433	21300	50505		
					01434	64120	00142		
					01435	00000	00012		
					01436	00000	01432		
.	C1135			CL B1	01437	12100	00000		
.	C1136			PUT 1*L(TYPEMESSW)	01440	10000	00001		
					01441	14010	01744		
.	C1137			JP GOGO1	01442	61000	00105		
.	C1140	ANSREW		TYPET Y-N	01443	61000	01445		
					01444	36412	30505		
					01445	64120	00142		
					01446	00000	00005		
					01447	00000	01444		
.	C1141			PUT 1*L(TYPEMESSW)	01450	10000	00001		
					01451	14010	01744		
.	C1142			JP GOGO1	01452	61000	00105		
.	C1143	SPACE		0 5	01453	00000	00005		
.	C1144			0 5	01454	00000	00005		
.	C1145			0 5	01455	00000	00005		
.	C1146			0 5	01456	00000	00005		
.	C1147			0 5	01457	00000	00005		
.	C1150			0 5	01460	00000	00005		
.	C1151			0 5	01461	00000	00005		
.	C1152	SPACE2		U-TAG SPACE+1*SPACE	01462	01454	01453		
.	C1153	SPACE3		U-TAG SPACE+2*SPACE	01463	01455	01453		
.	C1154	SPACE4		U-TAG SPACE+3*SPACE	01464	01456	01453		
.	C1155	SPACE5		U-TAG SPACE+4*SPACE	01465	01457	01453		
.	C1156	SPACE6		U-TAG SPACE+5*SPACE	01466	01460	01453		
.	C1157	SPACE7		U-TAG SPACE+6*SPACE	01467	01461	01453		
.	C1160	CHAR1		U-TAG TEMPORARY*TEMPORARY	01470	01714	01714		
.	C1161	ATTENIN		U-TAG ATTEN*ATTEN	01471	01472	01472		
.	C1162	ATTEN		0 0	01472	00000	00000		
.	C1163	XMANY		RESERVE 3	01473	00000	00000		
.	C1164	TYPEMESBUE		U-TAG TYPEMES+55D*TYPEMES	01476	01566	01477		
.	C1165	TYPEMES		RESERVE 55D	01477	00000	00000		
.	C1166	CVDTO		ENTRY	01566	61000	00000		
.	C1167			CL B3*	01567	12300	00000		
.	C1170			ENT Q*17	01570	10000	00017		
.	C1171			RPT 3*AOV	01571	70100	00003		
.	C1172			RPL LP*W(XMANY)	01572	44030	01473		
.	C1173			ENT Q*W(XMANY+B3)	01573	10033	01473		
.	C1174	GMORE		MUL 100	01574	22000	00012		
.	C1175			ADD Q*W(XMANY+1+B3)	01575	26033	01474		
.	C1176			BSK B3*1	01576	71300	00001		
.	C1177			JP GMORE	01577	61000	01574		
.	C1200			EXIT	01600	61010	01566		
.	C1201	ATTENTION		ENTRY	01601	61000	00000		
.	C1202			JP NOT*C2*ACTIVEIN	01602	62100	01611		
.	C1203			ENT A*L(ATTEN)	01603	11010	01472		
.	C1204			ENT Q*77	01604	10000	00077		
.	C1205			COM MASK*77*AZERO	01605	43400	00077		
.	C1206			COM MASK*57*ANCT	01606	43500	00057		

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                    ..........   SPURT OUTPUT NO. 210   ..........
                          MGTAPEDUMP          S.J.WHITE*09/25/64

CARDS    LI ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

    .    C1207            JP   UNITREQ                                01607  61000 00000
    .    C1210            IN   C2*W(ATTENIN)                          01610  73130 01471
    .    C1211 NCT        EXIT                                        01611  61010 01601
    .    C1212 BRINGIN    ENTRY                                       01612  61000 00000
    .    C1213            IN   C2*W(CHAR1)                            01613  73130 01470
    .    C1214            JP   $*C2*ACTIVEIN                          01614  62100 01614
    .    C1215            OUT  C2*W(CHAR1)                            01615  74130 01470
    .    C1216            JP   $*C2*ACTIVEOUT                         01616  63100 01616
    .    C1217            ENT  A*L(TEMPORARY)                         01617  11010 01714
    .    C1220            ENT  Q*77                                   01620  10000 00077
    .    C1221            COM  MASK*4*AZERO                           01621  43400 00004
    .    C1222            JP   CKMO                                   01622  61000 01625
    .    C1223            CL   B1*                                    01623  12100 00000
    .    C1224            JP   GOGO1                                  01624  61000 00105
    .    C1225 CKMO       COM  MASK*77*AZERO                          01625  43400 00077
    .    C1226            COM  MASK*57*ANOT                           01626  43500 00057
    .    C1227            JP   UNITREQ                                01627  61000 00000
    .    C1230            EXIT                                        01630  61010 01612
    .    C1231 WORDINFO   FD   9D*WORD          0            1       01631  34242 71105
                                    2
                                                                      01632  05050 50505
                                                                      01633  05050 50524
                                                                      01634  05050 50505
                                                                      01635  05050 50505
                                                                      01636  05050 50561
                                                                      01637  05050 50505
                                                                      01640  05050 50505
                                                                      01641  05050 50562
    .    C1232            FD   9D*               3            4       01642  05050 50505
                                       5
                                                                      01643  05050 50505
                                                                      01644  05050 50563
                                                                      01645  05050 50505
                                                                      01646  05050 50505
                                                                      01647  05050 50564
                                                                      01650  05050 50505
                                                                      01651  05050 50505
                                                                      01652  05050 50565
    .    C1233            FD   6*                6            7       01653  05050 50505
                                                                      01654  05050 50505
                                                                      01655  05050 50566
                                                                      01656  05050 50505
                                                                      01657  05050 50505
                                                                      01660  05050 50567
    .    C1234            -0   -0                                     01661  77777 77777
    .    C1235 FILEINFO   FD   8D*EOF...EOF...EOF...EOF,,,EOF...E001662  12241 37575
                               F...EOF.
                                                                      01663  75122 41375
                                                                      01664  75751 22413
                                                                      01665  75757 51224
                                                                      01666  13565 65612
                                                                      01667  24137 57575
                                                                      01670  12241 37575
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CARDS    LI ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

                                                                       01671  75122 41375
    .    01236             -0   -0                                     01672  77777 77777
    .    01237 RECORDINFO  FD   2*FILE NO.                             01673  13162 11205
                                                                       01674  23247 50505
    .    C1240 FILENUMCT   0    0                                      01675  00000 00000
    .    01241             0    0                                      01676  00000 00000
    .    C1242             FD   3*RECORD  NO.                          01677  27121 02427
                                                                       01700  11050 52324
                                                                       01701  75050 50505
    .    C1243 RECNUMCT    0    0                                      01702  00000 00000
    .    C1244             0    0                                      01703  00000 00000
    .    C1245             ED   4*WORDS IN THIS RECORD                 01704  34242 71130
                                                                       01705  05162 30531
                                                                       01706  15163 00527
                                                                       01707  12102 42711
    .    C1246 NCOFWRDS    0    0                                      01710  00000 00000
    .    C1247             0    0                                      01711  00000 00000
    .    C1250 ENDRECINFO  -0   -0                                     01712  77777 77777
    .    C1251 PRINTOUT    U-TAG     PRINTAREA+250*PRINTAREA           01713  01776 01745
    .    C1252 TEMPORARY   RESERVE   3                                 01714  00000 00000
    .    C1253 VISA        RESERVE   1                                 01717  00000 00000
    .    C1254 NUMBER      RESERVE   1                                 01720  00000 00000
    .    C1255 REWIND      RESERVE   1                                 01721  00000 00000
    .    C1256 SKIPFILE    RESERVE   1                                 01722  00000 00000
    .    C1257 SKIPREC     RESERVE   1                                 01723  00000 00000
    .    C1260 PROCFILE    RESERVE   1                                 01724  00000 00000
    .    C1261 PROCREC     RESERVE   1                                 01725  00000 00000
    .    C1262 DENSITYSW   RESERVE   1                                 01726  00000 00000
    .    01263 REFUNCWD    RESERVE   1                                 01727  00000 00000
    .    01264 TYPEFORM    RESERVE   1                                 01730  00000 00000
    .    C1265 NUMWRDS     RESERVE   1                                 01731  00000 00000
    .    C1266 FILECT      RESERVE   1                                 01732  00000 00000
    .    C1267 RECORDNO    RESERVE   1                                 01733  00000 00000
    .    01270 INDEX1      RESERVE   1                                 01734  00000 00000
    .    C1271 SPECSW      RESERVE   1                                 01735  00000 00000
    .    C1272 SAVEQ       RESERVE   1                                 01736  00000 00000
    .    C1273 STCCOUNT    RESERVE   1                                 01737  00000 00000
    .    01274 CNT1        RESERVE   1                                 01740  00000 00000
    .    C1275 CNT2        RESERVE   1                                 01741  00000 00000
    .    C1276 CNT3        RESERVE   1                                 01742  00000 00000
    .    C1277 CNT4        RESERVE   1                                 01743  00000 00000
    .    01300 TYPEMESSW   0    0                                      01744  00000 00000
    .    01301 PRINTAREA   RESERVE   260                               01745  00000 00000
    .    C1302 SAVEIT      RESERVE   5                                 01777  00000 00000
    .    C1303 HOLTOEC     RESERVE   5                                 02004  00000 00000
    .    C1304 PRINTER     MEANS     C3
    .    C1305 PRINTER     ASSIGN    PRINTERA(1)
    .    C1306 TAPEINTR    RJP  INTERRUPT                              02011  65000 01033
    .    C1307 FOZERO      6060606060                                  02012  60606 06060
    .    01310 WORDBLOCK   RESERVE   17D                               02013  00000 00000
    .    C1311 BUFFERIN    -0   INPUTBUF                               02034  77777 02035
    .    C1312 INPUTBUF    0    0                                      02035  00000 00000
    .    C1313             RESERVE   1                                 02036  00000 00000
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..... SPURT OUTPUT NO. 211 .....

MGTAPEDUMP S.J.WHITE•09/25/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
A$$$$$1111	00031	A$$$$$1112	00022	A$$$$$1113	00062
A$$$$$1114	00061	A$$$$$1115	00102	A$$$$$1116	00066
A$$$$$1117	00107	A$$$$$1118	00106	A$$$$$1119	00427
A$$$$$111A	00426	A$$$$$111B	00502	A$$$$$111C	00536
A$$$$$111D	00532	A$$$$$111E	00712	A$$$$$111F	00721
A$$$$$111G	01075	A$$$$$111H	01065	A$$$$$111I	01113
A$$$$$111J	01110	A$$$$$111K	01141	A$$$$$111L	01127
A$$$$$111M	01163	A$$$$$111N	01147	A$$$$$111O	01353
A$$$$$111P	01347	A$$$$$111Q	01366	A$$$$$111R	01362
A$$$$$111S	01401	A$$$$$111T	01375	A$$$$$111U	01414
A$$$$$111V	01410	A$$$$$111W	01425	A$$$$$111X	01423
A$$$$$111Y	01434	A$$$$$111Z	01432	A$$$$$1121	01445
A$$$$$1122	01444	AHEAD2	00166	AHEAD3	00225
AHEAD4	00261	AHEAD5	00313	AHEAD6	00337
AHEAD7	00362	AHEAD8	00405	AHEAD9	00422
AM001	00642	AM002	00650	ANSREW	01443
ATTEN	01472	ATTENIN	01471	ATTENTION	01601
BAD	00041	BRINGIN	01612	BUFFERIN	02034
COMMON	01217	CONVTAB	01242	CAUSEINTR	01044
CHAR1	01470	CKMO	01625	CNT1	01740
CNT2	01741	CNT3	01742	CNT4	01743
CVOTO	01566	DOWN1	01043	DOWN2	01101
DENERR	01361	DENSITYREQ	00147	DENSITYSW	01726
ENDFILE	01121	ENDREC	01117	ENDRECINFO	01712
ENDTAPE	01107	FORMERR	01407	FORWARD1	00441
FORWARD2	00453	FORWARD3	00464	FORWARD4	00511
FORWARD5	00522	F1	00631	FDZERO	02012
FILECT	01732	FILEINFO	01662	FILENUMCT	01675
GOOD	00044	GOGO	00060	GOGO1	00105
GOGO2	00117	GMORE	01574	HOCTDEC	02004
HIDEN	00210	IGNORE	01103	INDEX1	01734
INIT2	00005	INPUTBUF	02035	INTERLCK	01126
INTERRUPT	01033	KODDHIDEN	00223	LOADBUF	00755
LORGO	00552	MOD1	00660	MOD2	00666
MOREWRDS	01023	NOCFWRDS	01710	NOOIG	01431
NOT	01611	NEXT1	00567	NEXT2	00574
NEXT3	00611	NUMBER	01720	NUMWROS	01731
PARERR	01374	PROCESSER	00423	PROCFILE	01724
PROCREC	01725	PRINTOUT	01713	PRINTAREA	01745
PRINTIT	01225	PRNTPKT	01227	R2	00676
R3	00704	RDFUNCWD	01727	RECORDINFO	01673
RECORDNO	01733	RECNUMCT	01702	RECYCLE	01146
REDUN	01064	RESTOALL	01204	REWIND	01721
SAVEALL	01171	SAVECHAN	01170	SAVEIT	01777
SAVEQ	01736	SEEIFOCT	00254	SEEIFODD	00213
SEEIFFORD	00246	SEEIFLOW	00162	SEEUNIT	00120
SERVOERR	01346	SKIPFILE	01722	SKIPREC	01723
SPACE	01453	SPACE2	01462	SPACE3	01463
SPACE4	01464	SPACE5	01465	SPACE6	01466
SPACE7	01467	SPECSW	01735	STOCOUNT	01737
TAPEINTR	02011	TEMPORARY	01714	THERE1	00737

..... SPURT OUTPUT NO. 211 .....

MGTAPEDUMP S.J.WHITE•09/25/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
THERE2	00745	THERE3	00775	TRYAGAIN	01422
TYPEOCT	00635	TYPEOCTI	00725	TYPEBCO	00560
TYPEFORM	01730	TYPEFD	00615	TYPEMES	01477
TYPEMESBUF	01476	TYPEMESSW	01744	UNITREQ	00000
UNITREW	01124	VISA	01717	WOROBLOCK	02013
WORDINFO	01631	WORKONBUF	00542	WAIT1	00436
WAIT1A	00440	WAIT2	00447	WAIT3	00461
WAIT4	00472	WAIT5	00517	WHUNIT	01342
XMANY	01473	ZIP1	00273	ZIP2	00320
ZIP3	00344	ZIP4	00367	ZW01	00131
ZW02	00154	ZW03	00200	ZW04	00240
ZW05	00412				

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

MGTAPEDUMP S.J.WHITE•09/25/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
UNITREQ	00000	INIT2	00005	A$$$$$1112	00022
A$$$$$1111	00031	BAD	00041	GOOD	00044
GOGO	00060	A$$$$$1114	00061	A$$$$$1113	00062
A$$$$$1116	00066	A$$$$$1115	00102	GOGO1	00105
A$$$$$1118	00106	A$$$$$1117	00107	GOGO2	00117
SEEUNIT	00120	ZWD1	00131	DENSITYREQ	00147
ZWD2	00154	SEEIELOW	00162	AHEA02	00166
ZWD3	00200	HIDEN	00210	SEEIFODO	00213
KODDHIDEN	00223	AHEAD3	00225	ZWD4	00240
SEEIFFORO	00246	SEEIFOCT	00254	AHEAD4	00261
ZIP1	00273	AHEAD5	00313	ZIP2	00320
AHEAD6	00337	ZIP3	00344	AHEAD7	00362
ZIP4	00367	AHEAD8	00405	ZWD5	00412
AHEAD9	00422	PROCESSER	00423	A$$$$$111A	00426
A$$$$$1119	00427	WAIT1	00436	WAIT1A	00440
FORWARD1	00441	WAIT2	00447	FORWARD2	00453
WAIT3	00461	FORWARD3	00464	WAIT4	00472
A$$$$$111B	00502	FORWARD4	00511	WAIT5	00517
FORWARD5	00522	A$$$$$111D	00532	A$$$$$111C	00536
WORKONBUF	00542	LOBCD	00552	TYPEBCD	00560
NEXT1	00567	NEXT2	00574	NEXT3	00611
TYPEFD	00615	F1	00631	TYPEOCT	00635
AMOD1	00642	AMOD2	00650	MOD1	00660
MOD2	00666	R2	00676	R3	00704
A$$$$$111E	00712	A$$$$$111F	00721	TYPEOCT1	00725
THERE1	00737	THERE2	00745	LOADBUF	00755
THERE3	00775	MOREWRDS	01023	INTERRUPT	01033
DOWN1	01043	CAUSEINTR	01044	REDUN	01064
A$$$$$111H	01065	A$$$$$111G	01075	DOWN2	01101
IGNORE	01103	ENDTAPE	01107	A$$$$$111J	01110
A$$$$$1111	01113	ENDREC	01117	ENDFILE	01121
UNITREW	01124	INTERLCK	01126	A$$$$$111L	01127
A$$$$$111K	01141	RECYCLE	01146	A$$$$$111N	01147
A$$$$$111M	01163	SAVECHAN	01170	SAVEALL	01171
RESTOALL	01204	COMMON	01217	PRINTIT	01225
PRNTPKT	01227	CONVTAB	01242	WHUNIT	01342
SERVOERR	01346	A$$$$$111P	01347	A$$$$$111O	01353
OENERR	01361	A$$$$$111R	01362	A$$$$$111Q	01366
PARERR	01374	A$$$$$111T	01375	A$$$$$111S	01401
FORMERR	01407	A$$$$$111V	01410	A$$$$$111U	01414
TRYAGAIN	01422	A$$$$$111X	01423	A$$$$$111W	01425
NODIG	01431	A$$$$$1117	01432	A$$$$$111Y	01434
ANSREW	01443	A$$$$$1122	01444	A$$$$$1121	01445
SPACE	01453	SPACE2	01462	SPACE3	01463
SPACE4	01464	SPACE5	01465	SPACE6	01466
SPACE7	01467	CHAR1	01470	ATTENIN	01471
ATTEN	01472	XMANY	01473	TYPEMESBUF	01476
TYPEMES	01477	CVOTO	01566	GMORE	01574
ATTENTION	01601	NOT	01611	BRINGIN	01612
CKMO	01625	WORDINFO	01631	FILEINFO	01662
RECORDINFO	01673	FILENUMCT	01675	RECNUMCT	01702

..... SPURT OUTPUT NO. 212 .....

MGTAPEDUMP S.J.WHITE•09/25/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
NOOFWRDS	01710	ENDRECINFO	01712	PRINTOUT	01713
TEMPORARY	01714	VISA	01717	NUMBER	01720
REWIND	01721	SKIPFILE	01722	SKIPREC	01723
PROCFILE	01724	PROCREC	01725	DENSITYSW	01726
RDFUNCWD	01727	TYPEFORM	01730	NUMWROS	01731
FILECT	01732	RECORDNO	01733	INDEX1	01734
SPECSW	01735	SAVEQ	01736	STOCOUNT	01737
CNT1	01740	CNT2	01741	CNT3	01742
CNT4	01743	TYPEMESSW	01744	PRINTAREA	01745
SAVEIT	01777	HOCTDEC	02004	TAPEINTR	02011
FDZERO	02012	WORDBLOCK	02013	BUFFERIN	02034
INPUTBUF	02035				

END OF LISTING

SPURT OUTPUT NO. 210

MAKEA301TP J00*2/20/64

```
CARDS    L1 ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES
   .     CC000 MAKEA301TP    PROGRAM   J00*2/20/64
   .     CC001 INITIAL       EQUALS    10C00
   .     CC002 INITIAL       PUT   W(ENTRANCE)*W(35)                   10000  10030 11664
                                                                       10001  14030 00035
   .     CC003               PUT   W(JPPRINTOVR)*W(62)                 10002  10030 12232  SET CONSOLE TYPEWRITER INTERRU
                                                                                            PT
                                                                       10003  14030 00062
   .     CC004               PUT   12000*U(36)                         10004  10000 12000  SET DELTA CLOCK INTERRUPT TO N

                                                                       10005  14020 00036
   .     CC005               CLEAR     100D*MYUNP                      10006  70100 00144
                                                                       10007  16030 11140
   .     CC006               RJP   READTAPE                            10010  65000 12403
   .     CC007               U-TAG     INPUTAREA+150*INPUTAREA         10011  11704 11665
   .     CC010               ENT   A*W(INPUTAREA+2)                    10012  11030 11667  CHECK FOR PROG ON FIRST CARD
   .     CC011               SUB   A*W(PROGCODE)*ANOT                  10013  21530 11706
   .     CC012               JP    P1                                  10014  61000 10020
   .     CC013               RJP   PRINT                               10015  65000 12177
   .     CC014               11D   WRNGTAPE                            10016  00013 11707
   .     CC015               JP    INITIAL*STOP                        10017  61400 10000
   .     CC016 P1            ENT   A*MYUNP                             10020  11000 11140  UNPACK FIRST RECORD
   .     CC017               RJP   UNPACK                              10021  65000 12113
   .     CC020               160   INPUTAREA                           10022  00020 11665
   .     CC021               RJP   TRANSLATE                           10023  65000 11767
   .     CC022               800   MYUNP                               10024  00120 11140
   .     CC023               ENT   A*FRSTREC+1                         10025  11000 11130  PUT IN PROGRAM LABEL ON IO REC
                                                                                            ORD
   .     CC024               RJP   PACK                                10026  65000 12144
   .     CC025               10D   MYUNP                               10027  00012 11140
   .     CC026               RJP   PRINT                               10030  65000 12177
   .     CC027               2     FRSTREC+1                           10031  00002 11130
   .     CC030               ENT   A*FRSTREC+3                         10032  11000 11132
   .     CC031               RJP   PACK                                10033  65000 12144  PUT IN NAME AND DATE
   .     CC032               25D   MYUNP+21D                           10034  00031 11165
   .     CC033               RJP   WRITE                               10035  65000 10535  WRITE PROGRAM I O RECORD
   .     CC034               U-TAG     FRSTREC+8D*FRSTREC              10036  11137 11127
   .     CC035 BASICLOOP     ENT   A*PACKED                            10037  11000 11411
   .     CC036               STR   A*L(PREPACKVAR)                     10040  15010 10447
   .     CC037               RJP   PREPACK                             10041  65000 10442
   .     CC040               10D   MYUNP                               10042  00012 11140
   .     CC041               RJP   KOPFIELD                            10043  65000 10224
   .     CC042               RJP   LOOKAT                              10044  65000 10064
   .     CC043               RJP   KOPRANDFLD                          10045  65000 10322
   .     CC044 PACKFOR       RJP   PREPACK                             10046  65000 10442
   .     CC045               5     WHFOR                               10047  00005 10611
   .     CC046               RPL   Y-1*L(PREPACKVAR)                   10050  37010 10447
   .     CC047               STR   A*U(WRPARA)                         10051  15020 10053
   .     CC050               RJP   WRITE                               10052  65000 10535
   .     CC051 WRPARA        0     KOUTPUT                             10053  00000 11407
   .     CC052               RJP   READTAPE                            10054  65000 12403
   .     CC053               U-TAG     INPUT+15D*INPUT                 10055  11405 11366
   .     CC054               ENT   A*MYUNP                             10056  11000 11140
   .     CC055               RJP   UNPACK                              10057  65000 12113
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CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC056		160	INPUT	10060	00020	11366		
.	CC057		RJP	TRANSLATE	10061	65000	11767		
.	CC060		80D	MYUNP	10062	00120	11140		
.	CC061		JP	BASICLOOP	10063	61000	10037		
.	CC062	LOOKAT	ENTRY		10064	61000	00000		CHECK FOR SPECIAL OPERATORS
.	CC063		ENT	A•THISCODE	10065	11000	11475		PACK OPERATOR FIELD COL 12-16
.	CC064		RJP	PACK	10066	65000	12144		
.	CC065		5	MYUNP+110	10067	00005	11153		
.	CC066		ENT	A•0505050505	10070	11030	13113		
.	CC067		ENT	Q•W(THISCODE)	10071	10030	11475		
.	CC070		LSH	AQ•120	10072	07000	00014		
.	CC071		STR	A•W(TWOCHAR)	10073	15030	11476		
.	CC072		LSH	AQ•6	10074	07000	00006		
.	CC073		STR	A•W(THREECHAR)	10075	15030	11477		
.	CC074		LSH	AQ•6	10076	07000	00006		
.	CC075		STR	A•W(FOURCHAR)	10077	15030	11500		
.	CC076		LSH	AQ•6	10100	07000	00006		
.	CC077		STR	A•W(FIVECHAR)	10101	15030	11501		
.	CC100		ENT	Q•X77777	10102	10040	77777		
.	CC101		CL	B1•	10103	12100	00000		
.	CC102	ENTLP	ENT	LP•W(TWOCHAR+B11	10104	40031	11476		
.	CC103		COM	MASK•W(FDCODE+B11•ANOT	10105	43531	11502		
.	CC104		JP	L(WHICH+B1)	10106	61011	10120		
.	CC105		BSK	B1•1	10107	71100	00001		
.	CC106		JP	ENTLP	10110	61000	10104		
.	CC107		CL	B1	10111	12100	00000		
.	CC110		ENT	LP•W(FIVECHAR)	10112	40030	11501		
.	CC111	PVAL	COM	MASK•W(FIVEFIG+B1)•ANOT	10113	43531	11504		
.	CC112		JP	SPECCASE	10114	61000	10460		
.	CC113		BSK	B1•2	10115	71100	00002		
.	CC114		JP	PVAL	10116	61000	10113		
.	CC115		EXIT		10117	61010	10064		NOT A SPECIAL
.	CC116	WHICH	0	AFOOP	10120	00000	13066		
.	CC117		0	BYADAMS	10121	00000	10126		
.	CC120		0	SPECCASE	10122	00000	10460		
.	CC121		0	SPECCASE	10123	00000	10460		
.	CC122		0	SPECCASE	10124	00000	10460		
.	CC123		0	SPECCASE	10125	00000	10460		
.	CC124	BYADAMS	ENT	A•JTEMP	10126	11000	11605		IS A DEC OP
.	CC125		RJP	PACK	10127	65000	12144		
.	CC126		150	MYUNP+210	10130	00017	11165		PACK COLS 22-36 INTO JTEMP+
.	CC127		MOVE	3•JTEMP•NUMBER	10131	10030	11605		SET UP FOR DECON
					10132	14030	13060		
					10133	10030	11606		
					10134	14030	13061		
					10135	10030	11607		
					10136	14030	13062		
.	CC130		CL	B7	10137	12700	00000		
.	CC131	SEARCHB	ENT	A•U(MYUNP+210+B7)	10140	11027	11165		FIND B- BINARY POINT IND
.	CC132		SUB	A•7•ANOT	10141	21500	00007		
.	CC133		JP	FNDTHEB	10142	61000	10146		FOUND THE B
.	CC134		BSK	B7•140	10143	71700	00016		15 COLS

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKR	Y	NOTES
.	CC135			JP	SEARCHB	10144	61000		10140	
.	CC136			JP	BISO	10145	61000		10216	LOOK AT NEXT COL
.	CC137		ENDTHEB	BSK	B7*777	10146	71700		00777	LOOK AT NEXT COL
.	CC140			ENT	A*U(MYUNP+21D+B7)	10147	11027		11165	
.	CC141			SUB	A*60*APOS	10150	21600		00060	SKIP IF OK
.	CC142			JP	BISO	10151	61000		10216	SET B TO ZERO
.	CC143			STR	A*W(JTEMP+5)	10152	15030		11612	TENS DIGIT
.	CC144			BSK	B7*777	10153	71700		00777	NEXT COL
.	CC145			ENT	A*U(MYUNP+21D+B7)	10154	11027		11165	
.	CC146			SUB	A*60*APOS	10155	21600		00060	
.	CC147			JP	UNITSONLY	10156	61000		10220	NO TENS DIGIT
.	CC150			STR	A*W(JTEMP+6)	10157	15030		11613	UNITS
.	CC151		CONVERT	ENT	Q*L(JTEMP+5)	10160	10010		11612	TENS
.	CC152			MUL	100	10161	22000		00012	
.	CC153			ADD	Q*L(JTEMP+6)	10162	26010		11613	UNITS
.	CC154			STR	Q*L(BINPNT)	10163	14010		13063	BINARY SCALER
.	CC155		TODAN	RJP	DECON	10164	65000		12733	
.	CC156			CL	B1	10165	12100		00000	
.	CC157			ENT	Q*W(ACCUM)	10166	10030		13064	TRANSLATE RESULTS
.	CC160		WASHA	CL	A	10167	11000		00000	
.	CC161			LSH	AQ*3	10170	07000		00003	
.	CC162			ADD	A*60	10171	20000		00060	TO FO
.	CC163			STR	A*O(SHIFTAREA+B1	10172	15021		11511	
.	CC164			BSK	B1*90	10173	71100		00011	
.	CC165			JP	WASHA	10174	61000		10167	
.	CC166			ENT	A*PACKED+2	10175	11000		11413	
.	CC167			RJP	PACK	10176	65000		12144	
.	CC170			IOD	SHIFTAREA	10177	00012		11511	STORE TO FO
.	CC171			ENT	A*5	10200	11000		00005	
.	CC172			RPT	60D*AOV	10201	70100		00074	
.	CC173			STR	A*U(NOTATION)	10202	15020		10713	
.	CC174			CL	B1	10203	12100		00000	
.	CC175		TRY	ENT	A*O(MYUNP+11C+B11*ANOT	10204	11521		11153	
.	CC176			JP	INDEXIT	10205	61000		10207	
.	CC177			STR	A*O(NOTATION+B11	10206	15021		10713	
.	CC200		INDEXIT	BSK	B1*490	10207	71100		00061	
.	CC201			JP	TRY	10210	61000		10204	
.	CC202			PUT	50D*O(ECRNOTES1	10211	10000		00062	
						10212	14020		10425	
.	CC203			RJP	PREPACK	10213	65000		10442	
.	CC204			5	WHMASTSEP	10214	00005		10577	
.	CC205			JP	BREAKIN	10215	61000		10404	
.	CC206		BISO	CL	L(BINPNT)	10216	16010		13063	
.	CC207			JP	TODAN	10217	61000		10164	
.	CC210		UNITSONLY	PUT	L(JTEMP+5)*L(JTEMP+6)	10220	10010		11612	
						10221	14010		11613	
.	CC211			CL	W(JTEMP+5)	10222	16030		11612	
.	CC212			JP	CONVERT	10223	61000		10160	
.	CC213		KCPFIELD	ENTRY		10224	61000		00000	
.	CC214			CLEAR	1CD*MYEXPLCODE	10225	70100		00012	
						10226	16030		11723	
.	CC215			ENT	B7*90	10227	12700		00011	
.	CC216		NEWLABEL	ENT	C*O(MYUNP+11D+B7)	10230	10027		11153	

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CARDS    L1 ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     CC217            STR  Q*U(MYEXPLCODE+B71                     10231  14027 11723
   .     CC220            BJP  B7*NEWLABEL                            10232  72700 10230
   .     CC221            CLEAR     10D*EXPLODEDW                     10233  70100 00012
                                                                       10234  16030 11735
   .     CC222            CLEAR     10D*EXPLODEOVO                    10235  70100 00012
                                                                       10236  16030 11747
   .     CC223            CL   W(COLCNTW1                             10237  16030 11761
   .     CC224            CL   W(COLCNTVO1                            10240  16030 11762
   .     CC225            CL   B2                                     10241  12200 00000
   .     CC226            CL   B5                                     10242  12500 00000
   .     CC227 EXAMIN     ENT  A*W(MYEXPLCODE+B21                     10243  11032 11723
   .     CC230            STR  A*W(EXPLODEDW+B21*ANOT                 10244  15532 11735
   .     CC231            JP   FNOFRST                                10245  61000 10252
   .     CC232            RPL  Y+1*L(COLCNTW1                         10246  36010 11761
   .     CC233            BSK  B2*90                                  10247  71200 00011
   .     CC234            JP   EXAMIN                                 10250  61000 10243
   .     CC235            JP   CONTIN                                 10251  61000 10277  NO VO
   .     CC236 FNOFRST    BSK  B2*90                                  10252  71200 00011
   .     CC237 RTHERE     JP   RTHERE+2                               10253  61000 10255
   .     CC240            JP   CONTIN                                 10254  61000 10277
   .     CC241            ENT  A*W(MYEXPLCODE+B21*ANOT                10255  11532 11723
   .     CC242            JP   CONTIN                                 10256  61000 10277  TWO BLANKS IN A ROW NO VO
   .     CC243 LKAGN      ENT  A*W(MYEXPLCODE+B21                     10257  11032 11723
   .     CC244            STR  A*W(EXPLODEDVO+B51*ANOT                10260  15535 11747
   .     CC245            JP   END2ND                                 10261  61000 10266  END OF VO FIELD
   .     CC246            RPL  Y+1*L(COLCNTVO1                        10262  36010 11762
   .     CC247            BSK  B5*7777                                10263  71500 07777
   .     CC250            BSK  B2*90                                  10264  71200 00011
   .     CC251            JP   LKAGN                                  10265  61000 10257
   .     CC252 END2NO     ENT  A*50                                   10266  11000 00050  END OF VO PUT,IN SEPARATOR
   .     CC253            STR  A*U(EXPLODEDVO+B51                     10267  15025 11747
   .     CC254            PUT  5*U(PARAX1                             10270  10000 00005
                                                                       10271  14020 10320
   .     CC255            RPL  Y+1*L(COLCNTVO1                        10272  36010 11762
   .     CC256            SUB  A*6*APOS                               10273  21600 00006
   .     CC257            JP   CONTIN                                 10274  61000 10277
   .     CC260            PUT  10D*U(PARAX1                           10275  10000 00012
                                                                       10276  14020 10320
   .     CC261 CONTIN     ENT  Q*1                                    10277  10000 00001  AT LEAST ONE WORD
   .     CC262            ENT  A*5                                    10300  11000 00005
   .     CC263            SUB  A*L(COLCNTW1*APOS                      10301  21610 11761
   .     CC264            AOO  Q*1                                    10302  26000 00001
   .     CC265            STR  Q*L(NOWWORDS1                          10303  14010 11763
   .     CC266            PUT  L(COLCNTVO1*L(NOVOWORDS1               10304  10010 11762
                                                                       10305  14010 11764
   .     CC267 PATCH      ENT  Q*L(NOWWORDS1                          10306  10010 11763
   .     CC270            MUL  5                                      10307  22000 00005
   .     CC271            STR  Q*U(PARAM1                             10310  14020 10312
   .     CC272            RJP  PREPACK                                10311  65000 10442
   .     CC273 PARAM      O    EXPLODEDW                              10312  00000 11735
   .     CC274            RJP  PREPACK                                10313  65000 10442
   .     CC275            5    WHMASTSEP                              10314  00005 10577
   .     CC276            ENT  A*L(NOVOWORDS1*ANOT                    10315  11510 11764
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CARDS    LI ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES
  .      CC277             EXIT                                      10316  61010 10224
  .      CC300             RJP  PREPACK                              10317  65000 10442
  .      CC301 PARAX       5    EXPLOOECVO                           10320  00005 11747
  .      CC302             EXIT                                      10321  61010 10224
  .      CC303 KCPRANDFLD  ENTRY                                     10322  61000 00000
  .      CC304             CL   B5*                                  10323  12500 00000
  .      CC305             CL   B4*                                  10324  12400 00000
  .      CC306             CLEAR     60D*COLS22TO80                  10325  70100 00074
                                                                     10326  16030 10617
  .      CC307             ENT  A*5                                  10327  11000 00005
  .      CC310             RPT  800*AOV                              10330  70100 00120
  .      CC311             STR  A*U(NOTATION)                        10331  15020 10713
  .      CC312 ENDABLNK    ENT  A*U(MYUNP+210+B4)                    10332  11024 11165
  .      CC313             STR  A*U(COLS22TO80+B4)*ANOT              10333  15524 10617
  .      CC314             JP   ENOOPRAND                            10334  61000 10337
  .      CC315             BSK  B4*590                               10335  71400 00073
  .      CC316 NARYABLNK   JP   ENDABLNK                             10336  61000 10332
  .      CC317 ENDCPRANO   STR  B4*W(MAGICCOL)                       10337  16430 10616
  .      CC320             ENT  B4*B4+1                              10340  12404 00001
  .      CC321             ENT  Q*7700000                            10341  10030 13114
  .      CC322 KEEPON      ENT  LP*W(MYUNP+21D+B4)*ANOT              10342  40534 11165
  .      CC323             JP   INOEXR                               10343  61000 10347
  .      CC324             COM  MASK*W(ACOMMA)*ANOT                  10344  43530 11722
  .      CC325             JP   ENOCOMMA                             10345  61000 10433
  .      CC326             STR  A*W(NOTATION+B5)                     10346  15035 10713
  .      CC327 INDEXR      BSK  B5*7777                              10347  71500 07777
  .      CC330             BSK  B4*590                               10350  71400 00073
  .      CC331             JP   KEEPON                               10351  61000 10342
  .      CC332             CL   A*                                   10352  11000 00000
  .      CC333             ENT  Q*W(MAGICCOL)                        10353  10030 10616
  .      CC334             DIV  5                                    10354  23000 00005
  .      CC335             STR  A*W(JTEMP+3)                         10355  15030 11610
  .      CC336             MUL  5                                    10356  22000 00005
  .      CC337             ENT  A*W(JTEMP+3)*AZERO                   10357  11430 11610
  .      CC340             ADD  Q*5                                  10360  26000 00005
  .      CC341             STR  Q*U(FOROPRND)                        10361  14020 10365
  .      CC342             ENT  A*U(FOROPRND)*ANOT                   10362  11520 10365
  .      CC343             JP   FOROPRNO+1                           10363  61000 10366
  .      CC344             RJP  PREPACK                              10364  65000 10442  OUT THE OPERANO FIELO
  .      CC345 FOROPRND    0    COLS22TO80                           10365  00000 10617
  .      CC346             ENT  A*58D                                10366  11000 00072  EX COLS 23 TO 80 FOR NOTES
  .      CC347             SUR  A*L(MAGICCOL)                        10367  21010 10616  MINUS OPERAND FIELO
  .      CC350             STR  A*L(MINNCTES)                        10370  15010 10371
  .      CC351 MINNOTES    RPT  0*BACK                               10371  70200 00000
  .      CC352             ENT  A*U(MYUNP+79D)*ANOT                  10372  11520 11257
  .      CC353             JP   NONOTES                              10373  61000 10403
  .      CC354             ENT  Q*B7+1                               10374  10007 00001
  .      CC355             CL   A                                    10375  11000 00000
  .      CC356             DIV  5*AZERO                              10376  23400 00005
  .      CC357             ADD  Q*1                                  10377  26000 00001
  .      CC360             MUL  5                                    10400  22000 00005
  .      CC361             STR  Q*U(FORNOTES)                        10401  14020 10425
  .      CC362             JP   BREAKIN                              10402  61000 10404
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CARDS	LI ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC363	NONOTES		CL U(FORNOTES)	10403	16020	10425		
.	CC364	BREAKIN		RJP PREPACK	10404	65000	10442		NOTE SEPARATOR
.	CC365			S WHNOTESEP	10405	00005	10604		
.	CC366			ENT A*U(FORNOTES)*ANOT	10406	11520	10425		
.	CC367			JP L(KOPRANDFLO)	10407	61010	10322		NO NOTES
.	CC370			ENT A*NOTATION	10410	11000	10713		
.	CC371			STR A*L(FORNOTES)	10411	15010	10425		
.	CC372			CL B6*	10412	12600	00000		
.	CC373	LOOPER		ENT A*U(NOTATION+B6)	10413	11026	10713		
.	CC374			SUB A*5*ANOT	10414	21500	00005		
.	CC375			JP MOONOTES	10415	61000	10427		
.	CC376	FIXWORDS		CL A*	10416	11000	00000		
.	CC377			ENT Q*U(FORNOTES)	10417	10020	10425		
.	CC400			DIV 5*AZERO	10420	23400	00005		
.	CC401			ADD Q*1	10421	26000	00001		
.	CC402			MUL 5	10422	22000	00005		
.	CC403			STR Q*U(FORNOTES)	10423	14020	10425		
.	CC404			RJP PREPACK	10424	65000	10442		
.	CC405	FORNOTES		O NOTATION	10425	00000	10713		
.	CC406			EXIT	10426	61010	10322		
.	CC407	MOONOTES		RPL Y+1*L(FORNOTES)	10427	36010	10425		
.	CC410			RPL Y-1*U(FORNOTES)	10430	37020	10425		
.	CC411			BSK B6*77	10431	71600	00077		
.	CC412			JP LOOPER	10432	61000	10413		
.	CC413	ENDCOMMA		PUT 56*U(NOTATION+B5)	10433	10000	00056		
					10434	14025	10713		
.	CC414			ENT Q*77000CO	10435	10030	13114		
.	CC415			JP INDEXR	10436	61000	10347		
.	CC416	NOOPRAND		ENT A*600	10437	11000	00074		
.	CC417			STR A*U(FORNOTES)	10440	15020	10425		
.	CC420			JP BREAKIN	10441	61000	10404		
.	CC421	PREPACK		ENTRY	10442	61000	00000		MAINTAIN PACKING ADDRESS
.	CC422			PUT L(PREPACK)*L(STORIT)	10443	10010	10442		
					10444	14010	10445		
.	CC423	STORIT		ENT A*W(0)	10445	11030	00000		Y HERE TO BE UPDATED FOR UNPAC K SR
.	CC424			STR A*W(SETFOR)	10446	15030	10451		
.	CC425	PREPACKVAR		ENT A*PACKED	10447	11000	11411		FWA OF PACKED
.	CC426			RJP PACK	10450	65000	12144		
.	CC427	SETFOR		O 0	10451	00000	00000		
.	CC430			CL A*	10452	11000	00000		UPDATE FWA ADDR OF NEXT RESULT S
.	CC431			ENT Q*U(SETFOR)	10453	10020	10451		NO CHARS JUST WRITTEN
.	CC432			DIV 5	10454	23000	00005		NO WORDS
.	CC433			PPL Y+Q*W(PREPACKVAR)	10455	34030	10447		
.	CC434			RPL Y+1*L(PREPACK)	10456	36010	10442		
.	CC435			EXIT	10457	61010	10442		
.	CC436	SPECCASE		RPT 59D*BACK	10460	70200	00073		
.	CC437			ENT A*U(MYUNP+79D)*ANOT	10461	11520	11257		
.	CC440			JP ALLBLNK	10462	61000	10532		COLS 22-72 ALL BLANK
.	CC441			ENT A*U(MYUNP+15D)	10463	11020	11157		
.	CC442			SUB A*41*AZERO	10464	21400	00041		
.	CC443			JP LOTHEQ	10465	61000	10470		

CARDS	LI	IC	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC444			PUT	50*L(ISCOMMA)	10466	10000	00050		
						10467	14010	10526		
.	CC445		LCTHEQ	ENT	Q*87+1	10470	10007	00001		
.	CC446			CL	A*	10471	11000	00000		
.	CC447			DIV	5*ANOT	10472	23500	00005		
.	CC450			JP	EVENCOL	10473	61000	10501		
.	CC451			CL	A*	10474	11000	00000		
.	CC452			MUL	5	10475	22000	00005		
.	CC453			ADD	Q*5	10476	26000	00005		
.	CC454		PP3	STR	Q*U(VARPARA)	10477	14020	10522		
.	CC455			JP	PP2	10500	61000	10503		
.	CC456		EVENCOL	MUL	5	10501	22000	00005		
.	CC457			JP	PP3	10502	61000	10477		
.	CC460		PP2	ENT	A*5	10503	11000	00005		
.	CC461			RPT	600*AOV	10504	70100	00074		
.	CC462			STR	A*U(SPECFIELO)	10505	15020	11033		
.	CC463			ENT	B6*1	10506	12600	00001		
.	CC464			ENT	Q*7700000	10507	10030	13114		
.	CC465		MORE	ENT	LP*W(MYUNP+200+B61*ANOT	10510	40536	11164		
.	CC466			JP	BSKB6	10511	61000	10515		
.	CC467			COM	MASK*W(ACOMMA1*ANOT	10512	43530	11722		
.	CC470			JP	ISCOMMA	10513	61000	10526		
.	CC471			STR	A*W(SPECFIELD-1+B61	10514	15036	11032		
.	OC472		BSKB6	BSK	B6*U(VARPARA)	10515	71620	10522		
.	CC473			JP	MORE	10516	61000	10510		
.	CC474			PUT	56*L(ISCOMMA)	10517	10000	00056		
						10520	14010	10526		
.	CC475		JST1	RJP	PREPACK	10521	65000	10442		
.	CC476		VARPARA	O	SPECFIELO	10522	00000	11033		
.	CC477			RJP	PREPACK	10523	65000	10442		
.	CC50C			S	WHNOTESEP	10524	00005	10604		
.	CC501			JP	PACKEOR	10525	61000	10046		
.	CC502		ISCOMMA	PUT	56*U(SPECFIELO-1+B6)	10526	10000	00056		
						10527	14026	11032		
.	CC503			ENT	Q*7700000	10530	10030	13114		
.	OC504			JP	BSKB6	10531	61000	10515		
.	CC505		ALLBLNK	PUT	5*U(VARPARA)	10532	10000	00005		
						10533	14020	10522		
.	CC506			JP	JST1	10534	61000	10521		
.	CC507		WRITE	ENTRY		10535	61000	00000		WRITE + WAIT FOR 1 RECORD
.	CC510			PUT	W(ENTRANCE)*W(35)	10536	10030	11664		
						10537	14030	00035		
.	CC511			PUT	L(WRITE1*L(WRITEOUT1	10540	10010	10535		PICK UP BUFFER CONTROL WORD
						10541	14010	10545		
.	CC512			RPL	Y+1*L(WRITE)	10542	36010	10535		SET FOR NORMAL RJP +2
.	CC513		FOREWINO	EX-FCT	C15*1200000010	10543	13670	13115		
.	CC514			RIL		10544	60000	00000		
.	CC515		WRITEOUT	OUT	C15*W(0)	10545	74670	00000		
.	CC516		HERE	JP	HERE	10546	61000	10546		WAIT FOR INTERRUPT
.	CC517		INTERRUPT	STR	C15*W(CHANNEL1	10547	17670	11620		
.	CC520			ENT	A*U(CHANNEL)	10550	11020	11620		PICK UP STATUS WORD
.	CC521			RSH	A*110	10551	02000	00013		
.	CC522			AOO	A*STATCODE	10552	20000	11621		LOCATION OF TABLE OF JUMPS

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CARDS    LI IC LABEL       TA STATEMENT                                LOC    F JKB Y      NOTES

   .     CC523             STR  A*L(INTJUMP)                           10553  15010 10554
   .     CC524 INTJUMP     JP   L(0)                                   10554  61010 00000  JUMP CONTROLLING S.R.
   .     CC525 BADMCH      PUT  U(MYSERV01*U(UNITNO)                   10555  10020 11641  MACHINE ERROR OR NOT USED
                                                                       10556  14020 12500
   .     CC526             JP   MACHERROR                              10557  61000 12642  ART S ROUTINE
   .     CC527 REDUNDANT   EX-FCT    C15*2030000010                    10560  13670 13116  PARITY ON OUTPUT TAPE,BACKSPAC
                                                                                           E
   .     CC530             RPT  77777                                  10561  70000 77777
   .     CC531             NO-OP                                       10562  12000 00000
   .     CC532             EX-FCT    C15*0030000010                    10563  13670 13117  ERASE FORWARD
   .     CC533             JP   WRITEOUT                               10564  61000 10545
   .     CC534 ENDTAPE     EX-FCT    C15*0230000010                    10565  13670 13120  WRITE E O F HO
   .     CC535             RPT  77777                                  10566  70000 77777
   .     CC536             NO-OP                                       10567  12000 00000
   .     CC537             EX-FCT    C15*2110000010                    10570  13670 13121  REW W/ INTLCK
   .     CC540             RJP  PRINT                                  10571  65000 12177
   .     CC541             80   NEWTAPE                                10572  00010 11642
   .     CC542             EXIT STOP                                   10573  61410 10535
   .     CC543 INTERLCK    RJP  PRINT                                  10574  65000 12177
   .     CC544             100  WAKEUP                                 10575  00012 11652
   .     CC545             JP   WRITEOUT*STOP                          10576  61400 10545
   .     CC546 WHMASTSEP   50   0                                      10577  00050 00000
   .     CC547             0    0                                      10600  00000 00000
   .     CC550             0    0                                      10601  00000 00000
   .     CC551             0    0                                      10602  00000 00000
   .     CC552             0    0                                      10603  00000 00000
   .     CC553 WHNOTESEP   3    0                                      10604  00003 00000
   .     CC554             0    0                                      10605  00000 00000
   .     CC555             0    0                                      10606  00000 00000
   .     CC556             0    0                                      10607  00000 00000
   .     CC557             0    0                                      10610  00000 00000
   .     CC560 WHFOR       4    0                                      10611  00004 00000
   .     CC561             0    0                                      10612  00000 00000
   .     CC562             0    0                                      10613  00000 00000
   .     CC563             0    0                                      10614  00000 00000
   .     CC564             0    0                                      10615  00000 00000
   .     CC565 MAGICCOL    0    0                                      10616  00000 00000
   .     CC566 COLS22TO80  RESERVE   60D                               10617  00000 00000
   .     CC567 NOTATION    RESERVE   80D                               10713  00000 00000
   .     CC570 SPECFIELD   RESERVE   60D                               11033  00000 00000
   .     CC571 FRSTREC     7474700301                                  11127  74747 00301  SEARCH KEY
   .     CC572             0    0                                      11130  00000 00000  LABEL
   .     CC573             0    0                                      11131  00000 00000  OF PROGRAM
   .     CC574             0    0                                      11132  00000 00000  NAME OR PROGRAMMER
   .     CC575             0    0                                      11133  00000 00000  SEPARATOR
   .     CC576             0    0                                      11134  00000 00000  AND DATE
   .     CC577             0    0                                      11135  00000 00000
   .     CC600             0    0                                      11136  00000 00000
   .     CC601             7474700301                                  11137  74747 00301  SEARCH KEY
   .     CC602 MYUNP       RESERVE   1000                              11140  00000 00000
   .     CC603 MYPACK      RESERVE   50D                               11304  00000 00000
   .     CC604 INPUT       RESERVE   170                               11366  00000 00000
   .     CC605 KOUTPUT     0    0                                      11407  00000 00000
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CARDS   LI ID LABEL      TA STATEMENT                                  LOC   F JKB Y      NOTES

  .     CC606              0    0                                     11410  00000 00000
  .     CC607 PACKED       RESERVE   50D                              11411  00000 00000
  .     CC610              0    0                                     11473  00000 00000
  .     CC611              40000     0                                11474  40000 00000  END OF RECORD KEY
  .     CC612 THISCODE     0    0                                     11475  00000 00000
  .     CC613 TWOCHAR      0    0                                     11476  00000 00000
  .     CC614 THREECHAR    0    0                                     11477  00000 00000
  .     CC615 FOURCHAR     0    0                                     11500  00000 00000
  .     CC616 FIVECHAR     0    0                                     11501  00000 00000
  .     CC617 FDCODE       FD   1*   FD                              11502  05050 51311
  .     CC620 DECCODE      FD   1*  DEC                              11503  05051 11210
  .     CC621 FIVEFIG      FD   1*FORM-                               11504  13242 72241
  .     CC622 TYPETCODE    FD   1*TYPET                               11505  31362 51231
  .     CC623 COMMECODE    FD   1*COMME                               11506  10242 22212
  .     CC624              FD   1*FORM-                               11507  13242 72241
  .     CC625 SRECIND      0    0                                     11510  00000 00000  NON ZERO SPECIAL OPERATOR
  .     CC626 SHIFTAREA    RESERVE   60D                              11511  00000 00000
  .     CC627 JTEMP        RESERVE   10C                              11605  00000 00000  TEMPORARY STORAGE
  .     CC630 BCWORD       0    0                                     11617  00000 00000
  .     CC631 CHANNEL      0    0                                     11620  00000 00000
  .     CC632 STATCODE     00   BADMCH                                11621  00000 10555  0  NOT USED
  .     CC633              04   BADMCH                                11622  00004 10555  1  DD
  .     CC634              10   BADMCH                                11623  00010 10555  2  DD
  .     CC635              14   BADMCH                                11624  00014 10555  3  DD
  .     CC636              20   BADMCH                                11625  00020 10555  4  CHAR SYNC SEQUENCE ERRO
  .     CC637              24   FOREWIND                              11626  00024 10543
  .     CC640              30   BADMCH                                11627  00030 10555  6  CHAR COUNT ERROR
  .     CC641              34   BADMCH                                11630  00034 10555  7  FUNCTION WORD ERROR
  .     CC642              EXIT                                       11631  61010 10535  10 NORMAL COMPLETION
  .     CC643              44   REDUNDANT                             11632  00044 10560  11 PARITY
  .     CC644              50   BADMCH                                11633  00050 10555  12 CONTROL UNIT SEQUENCE ERROR
  .     CC645              54   BADMCH                                11634  00054 10555  13 END OF FILE
  .     CC646              60   ENDTAPE                               11635  0006D 10565  14 END OF TAPE
  .     CC647              64   BADMCH                                11636  00064 10555  15 NOT USED
  .     CC650              70   BADMCH                                11637  00070 10555  16 ABNORMAL FRAME COUNT
  .     CC651              74   INTERLCK                              11640  00074 10574  17 INTERLOCK
  .     CC652 MYSERVO      FD   1* C.                                 11641  05107 50505
  .     CC653 NEWTAPE      FD   8D*MOUNT ANDTHER OUTPUT TAPE AND RE   11642  22243 22331
                           SUME
                                                                      11643  05062 32431
                                                                      11644  15122 70524
                                                                      11645  32312 53231
                                                                      11646  05310 62512
                                                                      11647  05062 31105
                                                                      11650  27123 03222
                                                                      11651  12050 50505
  .     CC654 WAKEUP       FD   10D*INTERLOCK FAULT ON OUTPUT TAPE.   11652  16233 11227
                           ..REMEDY AND RESUME
                                                                      11653  21241 02005
                                                                      11654  13063 22131
                                                                      11655  05242 30524
                                                                      11656  32312 53231
                                                                      11657  05310 62512
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CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
					11660	75757 52712	
					11661	22121 13605	
					11662	06231 10527	
					11663	12303 22212	
.	CC655	ENTRANCE		JP INTERRUPT	11664	61000 10547	
.	CC656	INPUTAREA		RESERVE 17D	11665	00000 00000	
.	CC657	PROGCODE		2047514667	11706	20475 14667	
.	CC660	WRNGTAPE		FO 11D*WRONG FORMAT ON FIRST INPUT REC	11707	34272 42314	
				ORO..REMEDY AND RESUME			
					11710	05132 42722	
					11711	06310 52423	
					11712	05131 62730	
					11713	31051 62325	
					11714	32310 52712	
					11715	10242 71175	
					11716	75271 22212	
					11717	11360 50623	
					11720	11052 71230	
					11721	32221 20505	
.	CC661	ACOMMA		50 0	11722	00050 00000	
.	CC662	MYEXPLCODE		RESERVE 100	11723	00000 00000	
.	CC663	EXPLODEOW		RESERVE 10D	11735	00000 00000	
.	CC664	EXPLODEOVO		RESERVE 100	11747	00000 00000	
.	CC665	CCLCNTW		0 0	11761	00000 00000	
.	CC666	CCLCNTVO		0 0	11762	00000 00000	
.	CC667	NCWWORDS		0 0	11763	00000 00000	
.	CC670	NCVOWOROS		0 0	11764	00000 00000	
.	CC671	MASTERSEP		50000 0	11765	50000 00000	
.	CC672	LASTWORD		04000 0	11766	04000 00000	
.	CC673	TRANSLATE		ENTRY	11767	61000 00000	TRANSLATE FIELDATA TO BCD
.	CC674			PUT L(TRANSLATE)*L(TRANS)	11770	10010 11767	
					11771	14010 11772	
.	CC675	TRANS		PUT W(0)*W(COUNT)	11772	10030 00000	
					11773	14030 12012	
.	CC676			PUT L(COUNT)*L(TRANS1)	11774	10010 12012	FWA OF FIELDATA TEXT
					11775	14010 12002	
.	CC677			STR Q*L(TRANS3)	11776	14010 12006	
.	CC700			RPL Y+1*L(TRANSLATE)	11777	36010 11767	INDEX RETURN POINT
.	CC701			RPL Y-1*U(COUNT)	12000	37020 12012	CHARACTER COUNT - 1
.	CC702			CL B2*	12001	12200 00000	CLEAR CHARACTER COUNTER
.	CC703	TRANS1		ENT A*L(B2)	12002	11012 00000	NEXT CHARACTER OF FIELDATA TEX T
.	CC704			ADD A*DICTIONARY	12003	20000 12013	
.	CC705			STR A*L(TRANS2)	12004	15010 12005	ADDRESS OF BCD CHARACTER
.	CC706	TRANS2		ENT A*L(0)	12005	11010 00000	BCD TRANSLATION OF FO CHARACTE R
.	CC707	TRANS3		STR A*U(B2)	12006	15022 00000	STORE BCD IN UPPER HALF OF FO TEXT
.	CC710			BSK B2*U(COUNT)	12007	71220 12012	HAVE WE TRANSLATED ALL CHARACT ERS...
.	CC711			JP TRANS1	12010	61000 12002	NO.
.	CC712			EXIT	12011	61010 11767	YES. RETURN
.	CC713	CCUNT		0 0	12012	00000 00000	U

CARDS	LI	ID LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	CC714	DICTIONARY	00	00	12013	00000 00000	NG
.	CC715		01	61	12014	00001 00061	1
.	CC716		02	62	12015	00002 00062	2
.	CC717		03	63	12016	00003 00063	3
.	CC720		04	64	12017	00004 00064	4
.	CC721		05	65	12020	00005 00065	5
.	CC722		06	66	12021	00006 00066	6
.	CC723		07	67	12022	00007 00067	7
.	CC724		10	70	12023	00010 00070	8
.	CC725		11	71	12024	00011 00071	9
.	CC726		12	60	12025	00012 00060	0
.	CC727		13	44	12026	00013 00044	= EQUALS =
.	CC730		14	41	12027	00014 00041	DASH EQULS MINUS
.	CC731		15	00	12030	00015 00000	NG
.	CC732		16	00	12031	00016 00000	NG
.	CC733		17	00	12032	00017 00000	NG
.	CC734		20	00	12033	00020 00000	BLANK
.	CC735		21	74	12034	00021 00074	/
.	CC736		22	30	12035	00022 00030	S
.	CC737		23	31	12036	00023 00031	T
.	CC740		24	32	12037	00024 00032	U
.	CC741		25	33	12040	00025 00033	V
.	CC742		26	34	12041	00026 00034	W
.	CC743		27	35	12042	00027 00035	X
.	CC744		30	36	12043	00030 00036	Y
.	CC745		31	37	12044	00031 00037	Z
.	CC746		32	53	12045	00032 00053	COLON
.	CC747		33	50	12046	00033 00050	,
.	CC750		34	51	12047	00034 00051	(
.	CC751		35	00	12050	00035 00000	NG
.	CC752		36	00	12051	00036 00000	NG
.	CC753		37	00	12052	00037 00000	NG
.	CC754		40	41	12053	00040 00041	-
.	CC755		41	17	12054	00041 00017	J
.	CC756		42	20	12055	00042 00020	K
.	CC757		43	21	12056	00043 00021	L
.	CC760		44	22	12057	00044 00022	M
.	CC761		45	23	12060	00045 00023	N
.	CC762		46	60	12061	00046 00060	O
.	CC763		47	25	12062	00047 00025	P
.	CC764		50	26	12063	00050 00026	Q
.	CC765		51	27	12064	00051 00027	R
.	CC766		52	00	12065	00052 00000	NG
.	CC767		53	47	12066	00053 00047	OOLLAR SIGN
.	CC770		54	47	12067	00054 00047	CANT BE POINT SEPARATOR
.	CC771		55	00	12070	00055 00000	NG
.	CC772		56	00	12071	00056 00000	NG
.	CC773		57	00	12072	00057 00000	NG
.	CC774		60	42	12073	00060 00042	+
.	CC775		61	06	12074	00061 00006	A
.	CC776		62	07	12075	00062 00007	B
.	CC777		63	10	12076	00063 00010	C
.	C1000		64	11	12077	00064 00011	D

CAROS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C1001			65	12	12100	00065		00012	E
.	C1002			66	13	12101	00066		00013	F
.	C1003			67	14	12102	00067		00014	G
.	C1004			70	15	12103	00070		00015	H
.	C1005			71	16	12104	00071		00016	I
.	C1006			72	42	12105	00072		00042	.
.	C1007			73	75	12106	00073		00075	. LINE ABOVE IS +
.	C1010			74	40	12107	00074		00040	)
.	C1011			75	00	12110	00075		00000	NG
.	C1012			76	00	12111	00076		00000	NG
.	C1013			77	00	12112	00077		00000	NG
.	C1014		UNPACK	ENTRY		12113	61000		00000	UNPACK 1 CHARACTER TO WORD
.	C1015			STR	A*L(STOREUNPAK)	12114	15010		12135	FWA OF UNPACKED TABLE
.	C1016			PUT	L(UNPACK)*L(PUTCOUNTER)	12115	10010		12113	
						12116	14010		12117	
.	C1017		PUTCOUNTER	PUT	W(0)*W(CCOUNTER)	12117	10030		00000	
						12120	14030		12143	
.	C1020			RPL	Y+1*L(UNPACK)	12121	36010		12113	INDEX RETURN POINT
.	C1021			CL	B3*	12122	12300		00000	CLEAR WORD COUNTER
.	C1022			PUT	L(COUNTER)*L(GETPACK)	12123	10010		12143	FWA OF PACKED TABLE
						12124	14010		12132	
.	C1023			ENT	A*U(COUNTER)	12125	11020		12143	WORD COUNT
.	C1024			SUB	A*1	12126	21000		00001	WORD COUNT - 1
.	C1025			STR	A*L(LOOPLIMIT)	12127	15010		12140	
.	C1026			CL	B4*	12130	12400		00000	CLEAR CHARACTER COUNTER
.	C1027		LOOPSTART	ENT	B5*4	12131	12500		00004	SET TO LOOP 5 TIMES
.	C1030		GETPACK	ENT	Q*W(B3)	12132	10033		00000	PACKED WORD
.	C1031		LOOP1	CL	A*	12133	11000		00000	CLEAR ACCUMULATOR
.	C1032			LSH	AQ*6	12134	07000		00006	NEXT CHARACTER OF PACKED WORD
.	C1033		STOREUNPAK	STR	A*L(B4)	12135	15014		00000	STORE IN UNPACK TABLE
.	C1034			BSK	B4*77777	12136	71400		77777	INDEX UNPACK TABLE
.	C1035			BJP	B5*LOOP1	12137	72500		12133	FINISHED THIS WORD...
.	C1036		LOOPLIMIT	BSK	B3*0	12140	71300		00000	YES. FINISHED ALL WORDS...
.	C1037			JP	LOOPSTART	12141	61000		12131	NO.
.	C1040			EXIT		12142	61010		12113	YES.
.	C1041		CCUNTER	0	0	12143	00000		00000	U
.	C1042		PACK	ENTRY		12144	61000		00000	PACK 5 CHARACTERS PER WORD
.	C1043			STR	A*L(STOREPACK)	12145	15010		12172	FWA OF PACKED TABLE
.	C1044			PUT	L(PACK)*L(PUTCOUNT)	12146	10010		12144	
						12147	14010		12150	
.	C1045		PUTCOUNT	PUT	W(0)*W(WORDCOUNT)	12150	10030		00000	
						12151	14030		12176	
.	C1046			RPL	Y+1*L(PACK)	12152	36010		12144	INDEX RETURN POINT
.	C1047			CL	B3*	12153	12300		00000	CLEAR WORD COUNTER
.	C1050			PUT	L(WORDCOUNT)*L(GETCHAR)	12154	10010		12176	
						12155	14010		12167	
.	C1051			ENT	Q*U(WORDCOUNT)	12156	10020		12176	CHARACTER COUNT
.	C1052			CL	A*	12157	11000		00000	
.	C1053			DIV	5	12160	23000		00005	(CHARACTER COUNT)/5
.	C1054			SUB	Q*1	12161	27000		00001	PACKED WORD COUNT - 1
.	C1055			STR	Q*L(LOOPLIMIT2)	12162	14010		12173	
.	C1056			CL	B4*	12163	12400		00000	CLEAR CHARACTER COUNTER

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CARDS    L1 ID LABEL       TA STATEMENT                                LOC    F JKB Y      NOTES

   .     C1057 LOOPSTART2     ENT  B5*4                                12164  12500 00004  SET TO LOOP 5 TIMES
   .     C1060                CL   A*                                  12165  11000 00000  CLEAR ACCUMULATOR
   .     C1061 LOOP2          LSH  A*6                                 12166  06000 00006
   .     C1062 GETCHAR        SEL  SET*U(B4)                           12167  50024 00000  ADD NEXT CHARACTER
   .     C1063                BSK  B4*77777                            12170  71400 77777  INDEX UNPACK TABLE
   .     C1064                BJP  B5*LOOP2                            12171  72500 12166  FINISHED THIS WORD...
   .     C1065 STOREPACK      STR  A*W(B3)                             12172  15033 00000  YES. STORE PACKED WORD
   .     C1066 LOOPLIMIT2     BSK  B3*0                                12173  71300 00000  FINISHED STORING PACKED WORDS

   .     C1067                JP   LOOPSTART2                          12174  61000 12164  NO
   .     C1070                EXIT                                     12175  61010 12144  YES.
   .     01071 WORDCOUNT      0    0                                   12176  00000 00000  U
   .     C1072 PRINT          ENTRY                                    12177  61000 00000  PRINT ON CONSOLE TYPEWRITER
   .     C1073                PUT  L(PRINT)*L(SETUP)                   12200  10010 12177
                                                                       12201  14010 12202
   .     01074 SETUP          PUT  W(01*W(UNPACKCODE)                  12202  10030 00000
                                                                       12203  14030 12207
   .     C1075                RPL  Y+1*L(PRINT)                        12204  36010 12177  INDEX RETURN POINT
   .     C1076                ENT  A*BUFFERPRNT+3                      12205  11000 12237
   .     01077                RJP  UNPACK                              12206  65000 12113  UNPACK FIELDATA TEXT
   .     C1100 UNPACKCODE     0    0                                   12207  00000 00000
   .     C1101                ENT  Q*U(UNPACKCODE)                     12210  10020 12207  COUNT OF WORDS
   .     C1102                MUL  5                                   12211  22000 00005  COUNT OF CHARACTERS
   .     01103                ADD  Q*BUFFERPRNT+3                      12212  26000 12237
   .     C1104                STR  Q*L(STORECR)                        12213  14010 12217
   .     C1105                ADD  Q*1                                 12214  26000 00001
   .     C1106                STR  Q*L(STORELF)                        12215  14010 12221
   .     C1107                ENT  A*L(BUFFERPRNT)                     12216  11010 12234  TERMINATE LINE WITH CARRIAGE R
                                                                                          ETURN
   .     C1110 STORECR        STR  A*L(0)                              12217  1501U 00000
   .     C1111                ENT  A*L(BUFFERPRNT+1)                   12220  11010 12235
   .     01112 STURELF        STR  A*L(01                              12221  15010 00000
   .     C1113                STR  0*A                                 12222  14040 00000  LWA OF UNPACKED TEXT
   .     C1114                LSH  A*15D                               12223  06000 00017
   .     C1115                SEL  SET*BUFFERPRNT                      12224  50000 12234
   .     C1116                STR  A*W(PRINTBUFFC)                     12225  15030 12233
   .     C1117                OUT  C2*W(PRINTBUFFC)*MONITOR            12226  76130 12233
   .     C1120                RIL                                      12227  60000 00000
   .     C1121 WAITPRINT      JP   WAITPRINT                           12230  61000 12230
   .     C1122 PRINTOVER      EXIT                                     12231  61010 12177  RETURN AFTER PRINTING
   .     C1123 JPPRINTOVR     JP   PRINTOVER                           12232  61000 12231
   .     C1124 PRINTBUFFC     0    0                                   12233  00000 00000  BUFFER CONTROL FOR PRINTING

   .     C1125 BUFFERPRNT     0    04                                  12234  00000 00004  CARRIAGE RETURN
   .     C1126                0    03                                  12235  00U00 00003  LINE FEED
   .     C1127                0    03                                  12236  0000U 00003
   .     C113C                RESERVE   100C                           12237  0U000 00000
   .     C1131 READTAPE       ENTRY                                    12403  61000 00000  READ SPURT 210 TAPE
   .     C1132                PUT  L(READTAPE)*L(INBUFFER)             12404  1001U 12403
                                                                       12405  14010 12410
   .     C1133                RPL  Y+1*L(READTAPE)                     12406  36010 12403  INDEX RETURN POINT
   .     C1134                CL   B2*                                 12407  12200 00000
   .     C1135 INBUFFER       IN   C15*W(0)                            12410  73670 00000  ESTABLISH INPUT BUFFER
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CARDS    LI ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

   .     C1136            PUT  W(JPC15EXT1•W(35)                        12411  10030 12507
                                                                         12412  14030 00035
   .     C1137            EX-FCT    C15•5220000004                      12413  13670 13122
   .     C1140            RIL                                           12414  60000 00000
   .     C1141 WAIT1      JP   WAIT1                                    12415  61000 12415  WAIT FOR INTERRUPT
   .     01142 C15EXTINT  STR  C15•W(STATUS1                            12416  17670 12671  STATUS WORD
   .     C1143            ENT  A•U(STATUS1                              12417  11020 12671
   .     C1144            RSH  A•110                                    12420  02000 00013
   .     C1145            ADD  A•STATUSCODE                             12421  20000 12446
   .     01146            STR  A•L(INTERJUMP1                           12422  15010 12423
   .     C1147 INTERJUMP  JP   L(0)                                     12423  61010 00000  GO TO APPROPRIATE STATUS ROUTI
                                                                                            NE
   .     C1150 BACK       EXIT                                          12424  61010 12403
   .     01151 INTERLOCK  PUT  W(UNITNOINT1•W(LOCKP1                    12425  10030 12445  INTERLOCK ROUTINE
                                                                         12426  14030 12440
   .     C1152            RJP  PRINT                                    12427  65000 12177  PRINT INTERLOCK MESSAGE
   .     01153            110  INTERLOCKP                               12430  00013 12432
   .     C1154            JP   INBUFFER•STOP                            12431  61400 12410
   .     C1155 INTERLOCKP FD   6•THERE IS AN INTERLOCK ON UNIT           12432  31151 22712
                                                                         12433  05163 00506
                                                                         12434  23051 62331
                                                                         12435  12272 12410
                                                                         12436  20052 42305
                                                                         12437  32231 63105
   .     C1156 LOCKP      FD   5•C.  CORRECT AND START.                 12440  10750 50510
                                                                         12441  24272 71210
                                                                         12442  31050 62311
                                                                         12443  05303 10627
                                                                         12444  31750 50505
   .     C1157 UNITNOINT  FD   1•C.                                     12445  10750 50505
   .     C1160 STATUSCODE 00   MACHERR                                  12446  00000 12640  NOT USED
   .     C1161            04   MACHERR                                  12447  00004 12640  NOT USED
   .     C1162            10   MACHERR                                  12450  00010 12640  NOT USED
   .     01163            14   MACHERR                                  12451  00014 12640  NOT USED
   .     C1164            20   MACHERR                                  12452  00020 12640  CHARACTER SYNC SEQUENCE ERROR
   .     C1165            24   INBUFFER                                 12453  00024 12410  REWINDING
   .     C1166            30   MACHERR                                  12454  00030 12640  CHAR SYNC CHAR COUNT ERROR
   .     01167            34   MACHERR                                  12455  00034 12640  FUNCTION WORD ERROR
   .     C1170            40   BACK                                     12456  00040 12424  NORMAL COMPLETION
   .     C1171            44   PARITY                                   12457  00044 12510  PARITY ERROR
   .     01172            50   MACHERR                                  12460  00050 12640  CONTROL UNIT SEQUENCE ERROR
   .     C1173            54   WRITEEOF                                 12461  00054 12570  END OF FILE
   .     C1174            60   INPUTAPEND                               12462  00060 12672  END OF TAPE
   .     C1175            64   MACHERR                                  12463  00064 12640  NOT USED
   .     C1176            70   MACHERR                                  12464  00070 12640  ABNORMAL FRAME COUNT
   .     01177            74   INTERLOCK                                12465  00074 12425  INTERLOCK FAULT
   .     C120C MACHFAULT  FD   10D•A MACHINE FAULT HAS OCCURRED ON      12466  06052 20610
                                MAGNETIC TAPE UNIT
                                                                         12467  15162 31205
                                                                         12470  13063 22131
                                                                         12471  05150 63005
                                                                         12472  24101 03227
                                                                         12473  27121 10524
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CARDS	L1 ID LABEL	TA STATEMENT	LOC	F JKB Y	NOTES
			12474	23052 20614	
			12475	23123 11610	
			12476	05310 62512	
			12477	05322 31631	
.	C1201 UNITNO	FD 5*C . THE STATUS CODE IS	12500	10057 50505	
			12501	31151 20530	
			12502	31063 13230	
			12503	05102 41112	
			12504	05163 00505	
.	C1202 FDSTATCODE	FD 2*	12505	05050 50505	
			12506	05050 50505	
.	C1203 JPC15EXT	JP C15EXTINT	12507	61000 12416	
.	C1204 PARITY	BSK B2*90	12510	71200 00011	PARITY ROUTINE HAVE WE READ IO
					.....
.	C1205	JP TRYAGAIN	12511	61000 12523	NO. READ RECORD AGAIN
.	C1206	PUT U(UNITNOINT)*U(PMSG)	12512	10020 12445	
			12513	14020 12541	
.	C1207	RJP PRINT	12514	65000 12177	PRINT PARITY MESSAGE
.	C1210	110 PARITYMSG	12515	00013 12527	
.	C1211	RJP WRITE	12516	65000 10535	WRITE ADMONITION ON TAPE D
.	C1212	O-TAG TAPEPARMSG+10D*TAPEPARMSG	12517	12554 12542	SG
.	C1213	BSK B6*500	12520	71600 00062	
.	C1214	BSK B6*510	12521	71600 00063	
.	C1215	EXIT	12522	61010 12403	NORMAL EXIT
.	C1216 TRYAGAIN	FX-FCT C15*2030000004	12523	13670 13123	BACKSPACE RECORD WITHOUT INTER
					RUPT
.	C1217	RPT 77777	12524	70000 77777	
.	C1220	NO-OP	12525	12000 00000	
.	C1221	JP INBUFFER	12526	61000 12410	READ RECORD AGAIN
.	C1222 PARITYMSG	FD 10D*A PARITY OCCURRED 10 TIMES ON M	12527	06052 50627	
		AGNETIC TAPE UNIT			
			12530	16313 60524	
			12531	10103 22727	
			12532	12110 56124	
			12533	05311 62212	
			12534	30052 42305	
			12535	22061 42312	
			12536	31161 00531	
			12537	06251 20532	
			12540	23163 10505	
.	C1223 PMSG	FD 1*C.	12541	10750 50505	
.	C1224 TAPEPARMSG	RESERVE 110	12542	00000 00000	BCD PARITY MESSAGE
.	C1225 FDTAPEPAR	FD 10D*A PARITY OCCURRED ON INPUT TAPE	12555	06052 50627	
		IN FOLLOWING LI			
			12556	16313 60524	
			12557	10103 22727	
			12560	12110 52423	
			12561	05162 32532	
			12562	31053 10625	
			12563	12051 62305	
			12564	13242 12124	
			12565	34162 31405	
			12566	21160 50505	

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C1226				FD 1*NE.	12567	23127	50505		
.	C1227		WRITEEOF		RJP WRITE	12570	65000	10535		
.	C1230				U-TAG BYEBYE*LASTRECORD	12571	12730	12715		
.	C1231				RJP WRITE	12572	65000	10535		
.	C1232				U-TAG ENDALL+1*ENDALL	12573	12732	12731		
.	C1233				NO-OP	12574	12000	00000		
.	C1234				JP FINISH*KEY1	12575	61100	12610		
.	C1235				JP GOINGON*KEY2	12576	61200	12615		
.	C1236				JP WAITUP*KEY3	12577	61300	12620		
.	C1237				RJP PRINT	12600	65000	12177		
.	C1240				BD LISTOVER	12601	00010	12623		
.	C1241		KEYJUMPS		JP FINISH*KEY1	12602	61100	12610		TERMINATE OPTION
.	C1242				JP INITIAL*KEY2	12603	61200	10000		
.	C1243				JP $+2*KEY3	12604	61300	12606		
.	C1244				JP $+2	12605	61000	12607		
.	C1245				JP INITIAL*STOP	12606	61400	10000		
.	C1246				JP KEYJUMPS	12607	61000	12602		
.	C1247		FINISH		EX-FCT C15*2110000004	12610	13670	13124		REWIND INPUT TAPE W/INTERLOCK
.	C1250				RPT 77777	12611	70000	77777		
.	C1251				NO-OP	12612	12000	00000		
.	C1252				EX-FCT C15*2010000010	12613	13670	13125		REW
.	C1253				JP 137	12614	61000	00137		
.	C1254		GOINGON		RJP PRINT	12615	65000	12177		
.	C1255				2 GOGX	12616	00002	12633		
.	C1256				JP INITIAL	12617	61000	10000		
.	C1257		WAITUP		RJP PRINT	12620	65000	12177		
.	C1260				2 HURRYUP	12621	00002	12635		
.	C1261				JP INITIAL*STOP	12622	61400	10000		
.	C1262		LISTOVER		FO 8D*DONE...KEY1=TOPS,KEY2=GO ON,KEY3	12623	11242	31275		
					=WAIT					
						12624	75752	01236		
						12625	61443	12425		
						12626	30562	01236		
						12627	62441	42405		
						12630	24235	62012		
						12631	36634	43406		
						12632	16310	50505		
.	C1263		GOGX		FD 2*CONTINUING	12633	10242	33116		
						12634	23321	62314		
.	C1264		HURRYUP		FD 2*WAITING	12635	34061	63116		
						12636	23140	50505		
.	C1265		UNIT210		FD 1* C.	12637	05107	50505		
.	C1266		MACHERR		PUT U(UNIT21C)*U(UNITNO)	12640	10020	12637		
						12641	14020	12500		
.	C1267		MACHERROR		ENT C*W(STATUS)	12642	10030	12671		CONVERT STATUS CODE TO FIELDATA
.	C1270				RJP KOCTTOFD	12643	65000	12652		
.	C1271				STR A*W(FDSTATCODE)	12644	15030	12505		
.	C1272				RJP KOCTTOFD	12645	65000	12652		
.	C1273				STR A*W(FDSTATCODE+1)	12646	15030	12506		
.	C1274				RJP PRINT	12647	65000	12177		PRINT MACHINE ERROR MESSAGE
.	C1275				17D MACHFAULT	12650	00021	12466		

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CAROS    L1 ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

   .     C1276            JP   INITIAL*STOP                          12651  61400 10000
   .     01277 KCCTTOFO   ENTRY                                      12652  61000 00000
   .     C1300            CL   A*                                    12653  11000 00000
   .     C1301            LSH  AQ*3                                  12654  07000 00003
   .     C1302            LSH  A*3                                   12655  06000 00003
   .     01303            LSH  AQ*3                                  12656  07000 00003
   .     C1304            LSH  A*3                                   12657  06000 00003
   .     C1305            LSH  AQ*3                                  12660  07000 00003
   .     C1306            LSH  A*3                                   12661  06000 00003
   .     01307            LSH  AQ*3                                  12662  07000 00003
   .     C1310            LSH  A*3                                   12663  06000 00003
   .     C1311            LSH  AQ*3                                  12664  07000 00003
   .     C1312            NO-OP                                      12665  12000 00000
   .     C1313 DUMMY      ADD  A*W(EXCESS60)                         12666  20030 12670
   .     C1314            EXIT                                       12667  61010 12652
   .     C1315 EXCESS60   60606      06060                           12670  60606 06060
   .     C1316 STATUS     0    0                                     12671  00000 00000
   .     01317 INPUTAPENO PUT  W(ENOTAPEU)*W(ENDTAPEM)               12672  10030 12714
                                                                     12673  14030 12706
   .     C1320            RJP  PRINT                                 12674  65000 12177  PRINT END-OF-TAPE MESSAGE
   .     C1321            130  ENDOFTAPM                            12675  00015 12677
   .     01322            EXIT STOP                                  12676  61410 12652
   .     C1323 ENDOFTAPM  FD   7*AN END OF TAPE HAS OCCURRED ON UN   12677  06230 51223
                          IT
                                                                     12700  11052 41305
                                                                     12701  31062 51205
                                                                     12702  15063 00524
                                                                     12703  10103 22727
                                                                     12704  12110 52423
                                                                     12705  05322 31631
   .     C1324 ENDTAPEM   FD   6*  . HANG NEW TAPE AND START.       12706  05057 50515
                                                                     12707  06231 40523
                                                                     12710  12340 53106
                                                                     12711  25120 50623
                                                                     12712  11053 03106
                                                                     12713  27317 50505
   .     C1325 ENDTAPEU   FD   1* C.                                 12714  05107 50505
   .     C1326 LASTRECURD 0    0                                     12715  00000 00000  FILLER
   .     C1327            0    0                                     12716  00000 00000  DO
   .     C1330            0    0                                     12717  00000 00000  NO
   .     C1331            0    0                                     12720  00000 00000  LABEL
   .     C1332            2712301227                                 12721  27123 01227
   .     C1333            3312000000                                 12722  33120 00000  VE
   .     C1334            5000000000                                 12723  50000 00000  MASTERSEPARATOR
   .     C1335            6100000000                                 12724  61000 00000  1
   .     C1336            0300000000                                 12725  03000 00000  NOTE SEPARATOR
   .     C1337            0505050500                                 12726  05050 50500  NOTES
   .     C1340            0404000000                                 12727  04040 00000  END OF CARD
   .     C1341 BYEBYE     7474747474                                 12730  74747 47474  END OF TAPE
   .     C1342 ENDALL     FD   2*ENDOFDUMP                           12731  12231 12413
                                                                     12732  11322 22505
   .     C1343 DECON      RESERVE   1                                12733  00000 00000
   .     C1344            STR  A*W(ASAVE)                            12734  15030 13055
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CARDS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C1345			STR	Q*W(QSAVE)	12735	14030		13057	
.	C1346			STR	B1*U(BSAVE)	12736	16120		13056	
.	C1347			STR	B2*L(BSAVE)	12737	16210		13056	
.	C1350			CL	W(NDEC)	12740	16030		13065	
.	C1351			CL	W(DECSIGNFLG)	12741	16030		13047	
.	C1352			CL	W(FIRST)	12742	16030		13050	
.	C1353			CL	W(ACCUM)	12743	16030		13064	
.	C1354			CL	B1*	12744	12100		00000	
.	C1355		LCOPA	CL	A*	12745	11000		00000	
.	C1356			ENT	Q*W(NUMBER+B1)	12746	10031		13060	
.	C1357			ENT	B2*4	12747	12200		00004	
.	C1360		LCOPB	LSH	AQ*6	12750	07000		00006	
.	C1361			STR	A*W(TEMC)	12751	15030		13053	
.	C1362			SUB	A*7*ANOT	12752	21500		00007	
.	C1363			JP	SCALING	12753	61000		13011	
.	C1364			ENT	A*W(TEMC)	12754	11030		13053	
.	C1365			SUB	A*41*ANOT	12755	21500		00041	
.	C1366			JP	AMINUS	12756	61000		13007	
.	C1367			ENT	A*W(TEMC)	12757	11030		13053	
.	C1370			SUB	A*42*ANOT	12760	21500		00042	
.	C1371			JP	DECRET	12761	61000		13000	
.	C1372		GCODY	ENT	A*W(TEMC)	12762	11030		13053	
.	C1373			SUB	A*75*ANOT	12763	21500		00075	
.	C1374			JP	DECIMAL	12764	61000		13005	
.	C1375			ENT	A*W(TEMC)	12765	11030		13053	
.	C1376			STR	Q*W(TEMA)	12766	14030		13051	
.	C1377			ENT	Q*17	12767	10000		00017	
.	C1400			STR	LP*W(TEMB)	12770	47030		13052	
.	C1401			ENT	Q*W(ACCUM)	12771	10030		13064	
.	C1402			MUL	10D	12772	22000		00012	
.	C1403			ADD	Q*W(TEMB)	12773	26030		13052	
.	C1404			STR	Q*W(ACCUM)	12774	14030		13064	
.	C1405			ENT	Q*W(TEMA)	12775	10030		13051	
.	C1406			ENT	A*U(DECSIGNFLG)*AZERO	12776	11420		13047	
.	C1407			RPL	Y+1*W(NDEC)	12777	36030		13065	
.	C1410		CECRET	CL	A*	13000	11000		00000	
.	C1411			BJP	B2*LOOPB	13001	72200		12750	
.	C1412			BSK	B1*2	13002	71100		00002	
.	C1413			JP	LOOPA	13003	61000		12745	
.	C1414			JP	SCALING	13004	61000		13011	
.	C1415		CECIMAL	RPL	Y+1*U(DECSIGNFLG)	13005	36020		13047	
.	C1416			JP	DECRET	13006	61000		13000	
.	C1417		AMINUS	RPL	Y+1*L(DECSIGNFLG)	13007	36010		13047	
.	C1420			JP	CECRET	13010	61000		13000	
.	C1421		SCALING	RPL	Y-1*W(NDEC)*APOS	13011	37630		13065	
.	C1422			JP	NOSCALE	13012	61000		13020	
.	C1423			ENT	Q*100	13013	10000		00012	
.	C1424			RPT	W(NDEC)	13014	70030		13065	
.	C1425			MUL	10D	13015	22000		00012	
.	C1426			STR	Q*W(TENPOWER)	13016	14030		13054	
.	C1427			JP	BINSCALE	13017	61000		13022	
.	C1430		NOSCALE	ENT	Q*1	13020	10000		00001	
.	C1431			STR	Q*W(TENPOWER)	13021	14030		13054	

CARDS	L1	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C1432		BINSCALE	ENT	Q•W(ACCUM)	13022	10030	13064		
.	C1433			ENT	A•U(BINPNT)•AZERO	13023	11420	13063		
.	C1434			JP	BINEG	13024	61000	13031		
.	C1435			CL	A•	13025	11000	00000		
.	C1436			LSH	AQ•L(BINPNT)	13026	07010	13063		
.	C1437			DIV	W(TENPOWER)	13027	23030	13054		
.	C1440			JP	SIGNFIX	13030	61000	13035		
.	C1441		BINEG	CL	A•	13031	11000	00000		
.	C1442			DIV	W(TENPOWER)	13032	23030	13054		
.	C1443			CL	A•	13033	11000	00000		
.	C1444			RSH	Q•L(BINPNT)	13034	01010	13063		
.	C1445		SIGNFIX	STR	Q•W(ACCUM)	13035	14030	13064		
.	C1446			ENT	A•L(DECSIGNFLG)•ANOT	13036	11510	13047		
.	C1447			JP	THRU	13037	61000	13042		
.	C1450			ENT	A•W(ACCUM)	13040	11030	13064		
.	C1451			STR	A•CPW(ACCUM)	13041	15070	13064		
.	C1452		THRU	ENT	A•W(ASAVE)	13042	11030	13055		
.	C1453			ENT	Q•W(QSAVE)	13043	10030	13057		
.	C1454			ENT	B1•U(BSAVE)	13044	12120	13056		
.	C1455			ENT	B2•L(BSAVE)	13045	12210	13056		
.	C1456			JP	L(DECON)	13046	61010	12733		
.	C1457		DECSIGNFLG	RESERVE	1	13047	00000	00000		
.	C1460		FIRST	RESERVE	1	13050	00000	00000		
.	C1461		TEMA	RESERVE	1	13051	00000	00000		
.	C1462		TEMB	RESERVE	1	13052	00000	00000		
.	C1463		TEMC	RESERVE	1	13053	00000	00000		
.	C1464		TENPOWER	RESERVE	1	13054	00000	00000		
.	C1465		ASAVE	RESERVE	1	13055	00000	00000		
.	C1466		BSAVE	RESERVE	1	13056	00000	00000		
.	C1467		QSAVE	RESERVE	1	13057	00000	00000		
.	C1470		NUMBER	RESERVE	3	13060	00000	00000		
.	C1471		BINPNT	RESERVE	1	13063	00000	00000		
.	C1472		ACCUM	RESERVE	1	13064	00000	00000		
.	C1473		NDEC	RESERVE	1	13065	00000	00000		
.	C1474		AFCOP	ENT	Q•72	13066	10000	00072		
.	C1475			ENT	A•57	13067	11000	00057		
.	C1476			COM	AQ•U(MYUNP+140)•YIN	13070	04420	11156		
.	C1477			JP	SPECCASE	13071	61000	10460		
.	C1500			COM	AQ•U(MYUNP+150)•YIN	13072	04420	11157		
.	C1501			JP	SINGLENO	13073	61000	13104		
.	C1502			ENT	Q•U(MYUNP+140)	13074	10020	11156		
.	C1503			SUB	Q•60	13075	27000	00060		
.	C1504			MUL	100	13076	22000	00012		
.	C1505			ADD	Q•U(MYUNP+150)	13077	26020	11157		
.	C1506		GOHERE	SUB	Q•60	13100	27000	00060		
.	C1507			MUL	5	13101	22000	00005		
.	C1510			STR	Q•U(VARPARA)	13102	14020	10522		
.	C1511			JP	PP2	13103	61000	10503		
.	C1512		SINGLENO	ENT	Q•U(MYUNP+140)	13104	10020	11156		
.	C1513			SUB	Q•60	13105	27000	00060		
.	C1514			STR	Q•A•AZERO	13106	14440	00000		
.	C1515			JP	GOHERE+1	13107	61000	13101		
.	C1516			JP	SPECCASE	13110	61000	10460		

CARDS	L1 ID LABEL	TA STATEMENT	LOC	F JKB Y	NOTES
.	C1517	7777777777	13111	77777 77777	OEC -080
.	01520	RESERVE 1	13112	00000 00000	
			13113	05050 50505	
			13114	00077 00000	
			13115	12000 00010	
			13116	20300 00010	
			13117	00300 00010	
			13120	02300 00010	
			13121	21100 00010	
			13122	52200 00004	
			13123	20300 00004	
			13124	21100 00004	
			13125	20100 00010	

END OF LISTING

..... SPURT OUTPUT NO. 211 .....

MAKEA301TP JDD*2/20/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
A$$$$$1111	13113	A$$$$$1112	13114	A$$$$$1113	13115
A$$$$$1114	13116	A$$$$$1115	13117	A$$$$$1116	13120
A$$$$$1117	13121	A$$$$$1118	13122	A$$$$$1119	13123
A$$$$$111A	13124	A$$$$$111B	13125	ACOMMA	11722
ACCUM	13064	AFDOP	13066	ALLBLNK	10532
AMINUS	13007	ASAVE	13055	BACK	12424
BADMCH	10555	BASICLOOP	10037	BCWORD	11617
BINEG	13031	BINPNT	13063	BINSCALE	13022
BISO	10216	BREAKIN	10404	BSAVE	13056
BSKBB	10515	BUFFERPRNT	12234	BYADAMS	10126
BYEBYE	12730	COLCNTVO	11762	COLCNTW	11761
COLS22TO80	10617	COMMECODE	11506	CONTIN	10277
CONVERT	10160	COUNT	12012	COUNTER	12143
CISEXTINT	12416	CHANNEL	11620	DECON	12733
DECCODE	11503	DECIMAL	13005	DECRET	13000
DECSIGNFLG	13047	DICTIONARY	12013	DUMMY	12666
ENDOFTAPM	12677	ENDOPRAND	10337	ENDALL	12731
ENDTAPE	10565	ENDTAPEM	12706	ENDTAPEU	12714
ENTLP	10104	ENTRANCE	11664	EVENCOL	10501
EXAMIN	10243	EXCESS60	12670	EXPLODEOVO	11747
EXPLODEOW	11735	FOROPRND	10365	FOREWIND	10543
FORNOTES	10425	FOURCHAR	11500	FOCODE	11502
FOSTATCODE	12505	FDTAPEPAR	12555	FINISH	12610
FIRST	13050	FIVECHAR	11501	FIVEFIG	11504
FIXWORDS	10416	FND2NO	10266	FNOABLNK	10332
FNDCOMMA	10433	FNDERST	10252	FNOTHEB	10146
FRSTREC	11127	GOODY	12762	GOGX	12633
GOHERE	13100	GOINGON	12615	GETCHAR	12167
GETPACK	12132	HERE	10546	HURRYUP	12635
INBUFFER	12410	INDEXIT	10207	INDEXR	10347
INITIAL	10000	INPUT	11366	INPUTAPENO	12672
INPUTAREA	11665	INTERJUMP	12423	INTERLOCK	12425
INTERLOCKP	12432	INTERLCK	10574	INTERRUPT	10547
INTJUMP	10554	ISCOMMA	10526	JPCISEXT	12507
JPPRINTOVR	12232	JST1	10521	JTEMP	11605
KOCTTOFD	12652	KOPFIELD	10224	KOPRANOFLO	10322
KOUTPUT	11407	KEEPON	10342	KEYJUMPS	12602
LOOKAT	10064	LOOP1	12133	LOOP2	12166
LOOPA	12745	LOOPB	12750	LOOPER	10413
LOOPLIMIT	12140	LOOPLIMIT2	12173	LOOPSTART	12131
LOOPSTART2	12164	LOCKP	12440	LASTRECORD	12715
LASTWORD	11756	LOTHEQ	10470	LISTOVER	12623
LKAGN	10257	MODNOTES	10427	MORE	10510
MACHERR	12640	MACHERROR	12642	MACHFAULT	12466
MAGICCOL	10616	MASTERSEP	11765	MINNOTES	10371
MYEXPLCODE	11723	MYPACK	11304	MYSERVO	11641
MYUNP	11140	NOOPRAND	10437	NONOTES	10403
NOSCALE	13020	NOTATION	10713	NOVOWORDS	11764
NOWWORDS	11763	NARYABLNK	10336	NDEC	13065
NEWLABEL	10230	NEWTAPE	11642	NUMBER	13060
PI	10020	PACK	12144	PACKEOR	10046

..... SPURT OUTPUT NO. 211 .....

MAKEA3CITP JDD•2/20/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
PACKED	11411	PARAM	10312	PARAX	10320
PARITY	12510	PARITYMSG	12527	PATCH	10306
PMSG	12541	PP2	10503	PP3	10477
PROGCODE	11706	PREPACK	10442	PREPACKVAR	10447
PRINT	12177	PRINTOVER	12231	PRINTBUFFC	12233
PUTCOUNT	12150	PUTCOUNTER	12117	PVAL	10113
QSAVE	13057	READTAPE	12403	REDUNDANT	10560
RTHERE	10253	SCALING	13011	SEARCHB	10140
SETFOR	10451	SETUP	12202	SHIFTAREA	11511
SIGNFIX	13035	SINGLENO	13104	SPECCASE	10460
SPECFIELD	11033	SPECIND	11510	STORECR	12217
STOREIF	12221	STOREPACK	12172	STOREUNPAK	12135
STORIT	10445	STATCODE	11621	STATUS	12671
STATUSCODE	12446	TOCAN	10164	TAPEPARMSG	12542
TEMA	13051	TEMB	13052	TEMC	13053
TENPOWER	13054	THISCODE	11475	THREECHAR	11477
THRU	13042	TRANS	11772	TRANS1	12002
TRANS2	12005	TRANS3	12006	TRANSLATE	11767
TRY	10204	TRYAGAIN	12523	TWOCHAR	11476
TYPECODE	11505	UNIT210	12637	UNITNO	12500
UNITNOINT	12445	UNITSONLY	10220	UNPACK	12113
UNPACKCODE	12207	VARPARA	10522	WORDCOUNT	12176
WAITI	12415	WAITPRINT	12230	WAITUP	12620
WAKEUP	11652	WASHA	10167	WHEOR	10611
WHICH	10120	WHMASTSEP	10577	WHNOTESEP	10604
WRITE	10535	WRITEOUT	10545	WRITEEOF	12570
WRNGTAPE	11707	WRPARA	10053		

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

MAKEA301TP JDD*2/20/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
INITIAL	10000	PI	10020	BASICLOOP	10037
PACKEOR	10046	WRPARA	10053	LOOKAT	10064
ENTLP	10104	PVAL	10113	WHICH	10120
BYAOAMS	10126	SEARCHB	10140	FNOTHEB	10146
CONVERT	10160	TODAN	10164	WASHA	10167
TRY	10204	INDEXIT	10207	BISU	10216
UNITSONLY	10220	KOPFIELD	10224	NEWLABEL	10230
EXAMIN	10243	FNDFRST	10252	RTHERE	10253
LKAGN	10257	FND2NO	10266	CONTIN	10277
PATCH	10306	PARAM	10312	PARAX	10320
KOPRANDFLO	10322	FNDABLNK	10332	NARYABLNK	10336
FNOOPRAND	10337	KEEPON	10342	INOEXR	10347
FOROPRND	10365	MINNOTES	10371	NONOTES	10403
BREAKIN	10404	LOOPER	10413	FIXWORDS	10416
FORNOTES	10425	MODNOTES	10427	FNOCUMMA	10433
NOOPRAND	10437	PREPACK	10442	STORIT	10445
PREPACKVAR	10447	SETFOR	10451	SPECCASE	10460
LDTHEQ	10470	PP3	10477	EVENCOL	10501
PP2	10503	MORE	10510	BSKB6	10515
JST1	10521	VARPARA	10522	ISCOMMA	10526
ALLBLNK	10532	WRITE	10535	FOREWIND	10543
WRITEOUT	10545	HERE	10546	INTERRUPT	10547
INTJUMP	10554	BADMCH	10555	REQUNOANT	10560
FNOTAPE	10565	INTERLCK	10574	WHMASTSEP	10577
WHNOTESEP	10604	WHEOR	10611	MAGICCOL	10616
COLS22TO80	10617	NOTATION	10713	SPECFIELD	11033
FRSTREC	11127	MYUNP	11140	MYPACK	11304
INPUT	11366	KOUTPUT	11407	PACKED	11411
THISCODE	11475	TWOCHAR	11476	THREECHAR	11477
FOURCHAR	11500	FIVECHAR	11501	FOCODE	11502
CECCODE	11503	FIVEFIG	11504	TYPETCODE	11505
COMMECODE	11506	SPECIND	11510	SHIFTAREA	11511
JTEMP	11605	BCWORD	11617	CHANNEL	11620
STATCODE	11621	MYSERVO	11641	NEWTAPE	11642
WAKEUP	11652	ENTRANCE	11664	INPUTAREA	11665
PROGCODE	11706	WRNGTAPE	11707	ACOMMA	11722
MYEXPLCODE	11723	EXPLODEOW	11735	EXPLODEDVO	11747
COLCNTW	11761	COLCNTVO	11762	NOWWORDS	11763
NOVOWORDS	11764	MASTERSEP	11765	LASTWORD	11766
TRANSLATE	11767	TRANS	11772	TRANS1	12002
TRANS2	12005	TRANS3	12006	COUNT	12012
DICTIONARY	12013	UNPACK	12113	PUTCOUNTER	12117
LOOPSTART	12131	GETPACK	12132	LOOP1	12133
STOREUNPAK	12135	LOOPLIMIT	12140	COUNTER	12143
PACK	12144	PUTCOUNT	12150	LOOPSTART2	12164
LOOP2	12166	GETCHAR	12167	STOREPACK	12172
LOOPLIMIT2	12173	WOROCOUNT	12176	PRINT	12177
SETUP	12202	UNPACKCODE	12207	STORECR	12217
STORELF	12221	WAITPRINT	12230	PRINTOVER	12231
JPPRINTOVR	12232	PRINTBUFFC	12233	BUFFERPRNT	12234
READTAPE	12403	INBUFFER	12410	WAIT1	12415

..... SPURT OUTPUT NO. 212 .....

MAKEA301TP JDD•2/20/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
C15EXTINT	12416	INTERJUMP	12423	BACK	12424
INTERLOCK	12425	INTERLOCKP	12432	LOCKP	12440
UNITNOINT	12445	STATUSCODE	12446	MACHFAULT	12466
UNITNO	12500	FDSTATCODE	12505	JPC15EXT	12507
PARITY	12510	TRYAGAIN	12523	PARITYMSG	12527
PMSG	12541	TAPEPARMSG	12542	FOTAPEPAR	12555
WRITEEOF	12570	KEYJUMPS	12602	FINISH	12610
GOINGON	12615	WAITUP	12620	LISTOVER	12623
GOGX	12633	HURRYUP	12635	UNIT210	12637
MACHERR	12640	MACHERROR	12642	KOCTTOFD	12652
DUMMY	12666	EXCESS60	12670	STATUS	12671
INPUTAPENO	12672	ENDOFTAPM	12677	ENOTAPEM	12706
ENDTAPEU	12714	LASTRECORD	12715	BYEBYE	12730
ENDALL	12731	DECON	12733	LOOPA	12745
LOOPB	12750	GOODY	12762	DECRET	13000
DECIMAL	13005	AMINUS	13007	SCALING	13011
NOSCALE	13020	BINSCALE	13022	BINFG	13031
SIGNFIX	13035	THRU	13042	OFCSIGNFLG	13047
FIRST	13050	TEMA	13051	TEMB	13052
TEMC	13053	TENPOWER	13054	ASAVE	13055
BSAVE	13056	QSAVE	13057	NUMBER	13060
BINPNT	13063	ACCUM	13064	NOFC	13065
AFDOP	13066	GOHERE	13100	SINGLENO	13104
A$$$$$1111	13113	A$$$$$1112	13114	A$$$$$1113	13115
A$$$$$1114	13116	A$$$$$1115	13117	A$$$$$1116	13120
A$$$$$1117	13121	A$$$$$1118	13122	A$$$$$1119	13123
A$$$$$111A	13124	A$$$$$111B	13125		

END OF LISTING

```
      S.J. WHITE    HAYSTACK PLOTTER PROGRAM                                  6/28/65

      DIMENSION  NAME(5),ITIME(4),XK(3),BUFFER(200)
      CALL PLOTS (BUFFER(200),200)
  100 FORMAT (3(I2,1X),2X,3(I2,1X))
  101 FORMAT (A3,2X,F8.4,2X,F8.4)
  102 FORMAT (I1,1X,I3,2(1X,F4.1),1X,I3,A1)
  103 FORMAT (1X,5A6)
  104 FORMAT (2X,3(I2,1X))
  105 FORMAT (I1)
  106 FORMAT (4A6)
  200 FORMAT ( 28HIMPROPER ENTRY OF THE X-AXIS )
  201 FORMAT ( 41HWITH TIME AS THE X-AXIS NO MATCH W/Y-AXIS )
  202 FORMAT ( 41HWITH AAZ  AS THE X-AXIS NO MATCH W/Y-AXIS )
  203 FORMAT ( 41HWITH AEL  AS THE X-AXIS NO MATCH W/Y-AXIS )
  204 FORMAT ( 41HWITH CAZ  AS THE X-AXIS NO MATCH W/Y-AXIS )
      TIM = 3HTIM
      AAZ = 3HAAZ
      AEL = 3HAEL
      CAZ = 3HCAZ
      CEL = 3HCEL
      XM=1HM
 1001 CALL PLOT (XMLEN,-29.0,-3)
      CALL PLOT (0.0,4.5,-3)
      ASSIGN 400 TO K
 1000 READ INPUT TAPE 2,100,ISTHR,ISTMIN,ISTSEC,IEOHR,IEOMIN,IEOSEC
      BACKSPACE 2
      READ INPUT TAPE 2,106,ITIME(4),ITIME(3),ITIME(2),ITIME(1)
      READ INPUT TAPE 2,101,XAXIS,XMIN,XMAX
      READ INPUT TAPE 2,101,YAXIS,YMIN,YMAX
      READ INPUT TAPE 2,102,JTYPE,NPNTS,XINCH,YINCH,NUMB,UNIT
      NPNTS1=1
      NPNTS2=NPNTS
      TIMIC =0.
      I3=3
C     FIND XAXIS
B     TEST = (TIM+XAXIS)*(-(TIM*XAXIS))
      IF (TEST) 60,61,60
B   60 TEST = (AAZ+XAXIS)*(-(AAZ*XAXIS))
      IF (TEST) 62,63,62
B   62 TEST = (AEL+XAXIS)*(-(AEL*XAXIS))
      IF (TEST) 64,65,64
B   64 TEST = (CAZ+XAXIS)*(-(CAZ*XAX(S))
      IF (TEST) 66,67,66
C     WITH TIME AS THE XAXIS FIND YAXIS
B   61 TEST = (AAZ+YAXIS)*(-(AAZ*YAXIS))
      IF (TEST) 70,71,70
B   70 TEST = (AEL+YAXIS)*(-(AEL*YAXIS))
      IF (TEST) 72,73,72
B   72 TEST = (CAZ+YAXIS)*(-(CAZ*YAXIS))
      IF (TEST) 74,75,74
B   74 TEST = (CEL+YAXIS)*(-(CEL*YAXIS))
      IF (TEST) 76,77,76
C     WITH AAZ AS XAXIS FIND YAXIS
B   63 TEST = (AEL+YAXIS)*(-(AEL*YAXIS))
      IF (TEST) 80,81,80
B   80 TEST = (CAZ+YAXIS)*(-(CAZ*YAXIS))
```

```
      IF (TEST) 82,83,82
8  82 TEST = (CEL+YAXIS)*(-(CEL*YAXIS))
      IF (TEST) 84,85,84
C     WITH AEL AS XAXIS FIND YAXIS
8  65 TEST = (CAZ+YAXIS)*(-(CAZ*YAXIS))
      IF (TEST) 86,87,86
8  86 TEST = (CEL+YAXIS)*(-(CEL*YAXIS))
      IF (TEST) 88,89,88
8  67 TEST = (CEL+YAXIS)*(-(CEL*YAXIS))
      IF (TEST) 90,91,90
C     TIME VS. AAZ
   71 XK(1)= 6H(2X,F5
      XK(2)= 6H.3,)X,
      XK(3)= 5HF8.4)
      GO TO  300
C     TIME VS.  AEL
   73 XK(1)= 6H(2X,F5
      XK(2)= 6H.3,)0X
      XK(3)= 6H,F8.4)
      GO TO  300
C     TIME VS. CAZ
   75 XK(1)= 6H(2X,F5
      XK(2)= 6H.3,)9X
      XK(3)= 6H,F8.4)
      GO TO  300
C     TIME VS. CEL
   77 XK(1)= 6H(2X,F5
      XK(2)= 6H.3,28X
      XK(3)= 6H,F8.4)
      GO TO  300
C     AAZ VS. AEL
   81 XK(1)= 6H(8X,F8
      XK(2)= 6H.4,)X,
      XK(3)= 5HF8.4)
      GO TO  300
C     AAZ VS. CAZ
   83 XK(1)= 6H(8X,F8
      XK(2)= 6H.4,)0X
      XK(3)= 6H,F8.4)
      GO TO  300
C     AAZ VS. CEL
   85 XK(1)= 6H(8X,F8
      XK(2)= 6H.4,)9X
      XK(3)= 6H,F8.4)
      GO TO  300
C     AEL VS. CAZ
   87 XK(1)= 6H(18X,F
      XK(2)= 6H7.4,)X
      XK(3)= 6H,F8.4)
      GO TO  300
C     AEL VS. CEL
   89 XK(1)= 6H()7X,F
      XK(2)= 6H8.4,)0
      XK(3)= 6HXF8.4)
      GO TO  300
C     CAZ VS. CEL
```

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      S.J. WHITE    HAYSTACK PLOTTER PROGRAM                                  6/23/65

   91 XK11)= 6H126X,F
      XK12)= 6H8.4,1X
      XK13)= 6H,F8.4)
  300 GO TO K,1400,1)
8 400 TEST= 1  TIM *1-XAXIS))
      IF 1TEST) 10,11,10
   10 DX  =(1XMAX-XMIN)/XINCH)*10.
      DY =11YMAX-YMIN)/YINCH)*)0.
      CALL AXIS 10.0,0.0,XAXIS,3,XINCH,0.0,XMIN,DX)
      CALL AXIS 10.0,0.0,YAXIS,3,YINCH,90.0,YMIN,DY)
      XMLEN  =XINCH
      GO TO 12
   11 DY =11YMAX-YMIN)/YINCH)*10.
      IHR1 = IEDHR*3600
      IMIN1 = IEDMIN*60
      MSEC1 = IEDSEC + IMIN1 + IHR1
      IHR2 = ISTHR*3600
      IMIN2 = ISTMIN*60
      MSEC2 = ISTSEC + IMIN2 + IHR2
      MSECS = MSEC1 - MSEC2
8     TEST = IXM+UNIT)*I-1XM*UNIT))
      IF ITEST) 500,501,502
  500 MSECS = MSECS/3600
      GO TO 502
  501 MSECS = MSECS/60
  502 XNUMB = NUMB*10
      XMLEN = MSECS/NUMB
      CALL AXIS 10.0,0.0,4HTIME,4,XMLEN,0.0,XMIN,XNUMB)
      CALL AXIS 10.0,0.0,YAXIS,3,YINCH,90.0,YMIN,DY)
   12 READ INPUT TAPE 16,103,NAME15),NAME14),NAME13),NAME12),NAME11)
      CALL SKIP 11,3)
      YNAME1=YINCH+1.
      YNAME2=YINCH+.5
      CALL SYMBL4 (0.5,YNAME1,.21,NAME15),0.0,30)
      CALL SYMBL4 10.5,YNAME2,.21,ITIME14),0.0,24)
    ) CALL SKIP 12,2)
      READ INPUT TAPE )6,104,IHR,IMIN,ISEC
      IF (IHR-ISTHR) 50,51,51
   51 IF 1IMIN-ISTMIN) 50,52,52
   52 IF 1ISEC-ISTSEC) 50,53,53
   50 ISKIP=NPNTS+4
      CALL SKIP 1ISKIP,2)
      GO TO 1
   53 CALL SKIP 14,2)
      DO 2 N=1,NPNTS
      READ INPUT TAPE 16,XK,AXAXIS,AYAXIS
8     TEST= I  TIM*(-XAXIS))
      IF 1TEST) 13,14,13
   14 AXAXIS=AXAXIS+TIMIC
   13 IF 1JTYPE) 15,22,15
   15 IF 1IBROK) 17,18,17
   17 13=3
      NAYNYE=NAYNYE-1
      IF 1NAYNYE) 30,30,31
   30 IBROK=0
      NAYNYE=NPNTS/50
```

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      S.J. WHITE    HAYSTACK PLOTTER PROGRAM                          6/28/65

   31 GO TO 22
   18 NAYNYE=NAYNYE-1
      IF (NAYNYE) 32,32,22
   32 IBROK=1
      NAYNYE=NPNTS/50
B  22 TEST= (TIM*(-XAXIS))
      IF ITEST) 20,21,20
   20 AXAXIS=I(AXAXIS-XMIN)/(XMAX-XMIN))*XINCH
      AYAXIS=(IAYAXIS-YMIN)/(YMAX-YMIN))*YINCH
      GO TO 16
   21 AXAXIS= AXAXIS/2.
      AYAXIS=(IAYAXIS-YMIN)/(YMAX-YMIN))*YINCH
   16 CALL PLOT (AXAXIS,AYAXIS,I3)
    2 I3=2
      CALL SKIP (2,2)
      READ INPUT TAPE 16,104,IHR,IMIN,ISEC
      IF (IHR-IEDHR) 40,41,42
   41 IF IIMIN-IEOMIN) 40,43,42
   43 IF (ISEC-IEOSEC) 40,42,42
   40 TIMIC = TIMIC + 2.
      GO TO 53
   42 READ INPUT TAPE 2,105,NEXTOO
      GO TO I45,46,47,48),NEXTDO
   46 CALL SKIP (1,4)
      ASSIGN 1 TO K
      CALL PLOT (0.0,-29.0,-3)
      CALL PLOT  (0.0,4.5,-3)
      GO TO 1000
   47 CALL SKIP(1,4)
      XMLEN  =XMLEN+2.
      GO TO 1001
   48 CALL SKIP (1,1)
      XMLEN  =XMLEN+2.
      GO TO 1001
   66 PRINT 200
      STOP 70707
   76 PRINT 201
      STOP 70707
   84 PRINT 202
      STOP 70707
   88 PRINT 203
      STOP 70707
   90 PRINT 204
      STOP 70707
   45 XMLEN  =XMLEN+2.
      CALL PLOT (XMLEN,-29.0,-3)
      CALL EXIT
      END(1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0)
```

S.J. WHITE HAYSTACK PLOTTER PROGRAM 6/28/65

STORAGE NOT USED BY PROGRAM

DEC	OCT	DEC	OCT
1219	02303	32561	77461

STORAGE LOCATIONS FOR VARIABLES APPEARING IN DIMENSION AND EQUIVALENCE STATEMENTS

	DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT
BUFFER	1206	02266	ITIME	1213	02275	NAME	1218	02302	XK	1209	02271			

STORAGE LOCATIONS FOR VARIABLES NOT APPEARING IN COMMON, DIMENSION, OR EQUIVALENCE STATEMENT

	DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT
AAZ	1006	01756	AEL	1005	01755	AXAXIS	1004	01754	AYAXIS	1003	01753	CAZ	1002	01752
CEL	1001	01751	DX	1000	01750	DY	999	01747	I3	998	01746	IBROK	997	01745
IEOHR	996	01744	IEOMIN	995	01743	IEOSEC	994	01742	IHR1	993	01741	IHR2	992	01740
IHR	991	01737	IMIN1	990	01736	IMIN2	989	01735	IMIN	988	01734	ISEC	987	01733
ISKIP	986	01732	ISTHR	985	01731	ISTMIN	984	01730	ISTSEC	983	01727	JTYPE	982	01726
K	981	01725	MSEC1	980	01724	MSEC2	979	01723	MSECS	978	01722	NAYNYE	977	01721
NEXTOO	976	01720	NPNTS1	975	01717	NPNTS2	974	01716	NPNTS	973	01715	NUMB	972	01714
TEST	971	01713	TIMIC	970	01712	TIM	969	01711	UNIT	968	01710	XAXIS	967	01707
XINCH	966	01706	XMAX	965	01705	XMIN	964	01704	XMLEN	963	01703	XM	962	01702
XNUMB	961	01701	YAXIS	960	01700	YINCH	959	01677	YMAX	958	01676	YMIN	957	01675
YNAME1	956	01674	YNAME2	955	01673									

SYMBOLS AND LOCATIONS FOR SOURCE PROGRAM FORMAT STATEMENTS

	EFN	LOC		EFN	LOC		EFN	LOC		EFN	LOC		EFN	LOC
8)34	100	01665	8)35	101	01661	8)36	102	01655	8)37	103	01647	8)38	104	01645
8)39	105	01642	8)3A	106	01641	8)68	200	01640	8)69	201	01632	8)6A	202	01521
8)6B	203	01610	8)6C	204	01577									

LOCATIONS FOR OTHER SYMBOLS NOT APPEARING IN SOURCE PROGRAM

	DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT
1)	950	01666	2)	785	01421	3)	872	01550	4)	32767	77777	5)	783	01417
6)	881	01561	8)	798	01436	C)G1	953	01671	C)200	954	01672	D)101	33	00041
D)102	51	00063	D)11R	729	01331	E)10	595	01123	E)1E	597	01125	E)1P	699	01273
E)1Q	720	01320	E)1R	728	01330									

LOCATIONS OF NAMES IN TRANSFER VECTOR

	DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT		DEC	OCT
AXIS	6	00006	EXIT	11	00013	PLOT	2	00002	PLOTS	1	00001	SKIP	7	00007
SYMBL4	8	00010	(BST)	5	00005	(FIL)	10	00012	(FPT)	0	00000	(RTN)	4	00004
(SPH)	9	00011	(TSH)	3	00003									

ENTRY POINTS TO SUBROUTINES NOT OUTPUT FROM LIBRARY

AXIS EXIT PLOT PLOTS SKIP SYMBL4 (BST) (FIL) (FPT) (RTN)
(SPH) (TSH)

S.J. WHITE HAYSTACK PLOTTER PROGRAM 6/28/65

EXTERNAL FORMULA NUMBERS WITH CORRESPONDING INTERNAL FORMULA NUMBERS AND OCTAL LOCATIONS

EFN	IFN	LOC	EFN	IFN	LOC	EFN	IFN	LOC	EFN	IFN	LOC	EFN	IFN	LOC
1001	22	00042	1000	25	00064	60	42	00210	62	44	00222	64	46	00234
61	48	00250	70	50	00262	72	52	00274	74	54	00306	63	56	00322
80	58	00334	82	60	00346	65	62	00362	86	64	00374	67	66	00410
71	68	00424	73	72	00433	75	76	00442	77	80	00451	81	84	00460
83	88	00467	85	92	00476	87	96	00505	89	100	00514	91	104	00523
300	107	00531	400	108	00532	10	110	00540	11	116	00577	500	126	00652
501	128	00661	502	129	00667	12	133	00732	1	140	00777	51	144	01021
52	145	01026	50	146	01032	53	149	01041	14	155	01073	13	156	01076
15	157	01100	17	158	01102	30	161	01112	31	163	01124	18	164	01126
32	166	01134	22	168	01144	20	170	01152	21	173	01173	16	175	01206
2	176	01214	41	181	01242	43	182	01247	40	183	01253	42	185	01257
46	188	01274	47	193	01321	48	196	01332	66	199	01341	76	201	01346
84	203	01353	88	205	01360	90	207	01365	45	209	01372			

```
                    00000           ENTRY   SKIP
00000 -0520 60 4 00001  SKIP        NZT*    1,4
00001  0020 00 4 00003              TRA     3,4
                    02206  X        TAPENO  B6L
00002  0634 00 1 00051              SXA     XR,1
00003  0500 60 4 00002              CLA*    2,4
00004 -0734 00 1 00000              POX     ,1
00005  0500 60 4 00001              CLA*    1,4
00006  0020 00 1 00013              TRA     *+5,1
00007  0020 00 0 00037              TRA     FILFO
00010  0020 00 0 00013              TRA     BACK
00011  0020 00 0 00031              TRA     REC
00012  0020 00 0 00017              TRA     FILE
00013 -0734 00 1 00000  BACK        PDX     ,1
00014  0764 00 0 02206              BSRX
00015  2 00001 1 00014              TIX     *-1,1,1
00016  0020 00 0 00051              TRA     XR
00017 -0734 00 1 00000  FILE        POX     ,1
00020  0762 00 0 02206              RTOX
00021 -0540 00 0 00026              RCHX    IOI
00022  0061 00 0 00022              TCOX    *
00023 -0030 00 0 00024              TEFX    *+1
00024  2 00001 1 00020              TIX     *-4,1,1
00025  0020 00 0 00051              TRA     XR
00026 -0 00001 2 00030  IOI         IOCPN   DUM,,1
00027  1 00000 0 00026              TCH     IOI
00030  0 00000 0 00000  OUM         PZE
00031 -0734 00 1 00000  REC         POX     ,1
00032  0762 00 0 02206              RTDX
00033  0061 00 0 00033              TCOX    *
00034 -0030 00 0 00035              TEFX    *+1
00035  2 00001 1 00032              TIX     *-3,1,1
00036  0020 00 0 00051              TRA     XR
00037 -0734 00 1 00000  FILFO       PDX     ,1
00040 -0764 00 0 02206              BSFX
00041  0061 00 0 00041              TCOX    *
00042 -0030 00 0 00043              TEFX    *+1
00043  2 00001 1 00040              TIX     *-3,1,1
00044  0762 00 0 02206              RTOX
00045  0061 00 0 00045              TCOX    *
00046 -0030 00 0 00051              TEFX    *+3
00047  0772 00 0 02206              REWX
00050  0061 00 0 00050              TCOX    *
00051  0774 00 1 00000  XR          AXT     **,1
00052  0020 00 4 00003              TRA     3,4
                                    END
```

6/28/65

POST PROCESSOR ASSEMBLY DATA

53 IS THE FIRST LOCATION NOT USED BY THIS PROGRAM

REFERENCES TO DEFINED SYMBOLS

2206	X	2, 14, 20, 21, 22, 23, 32, 33, 34, 40, 41, 42, 44, 45, 46, 47, 50
51	XR	2, 16, 25, 36
30	OUM	26
26	IOI	21, 27
31	REC	11
13	BACK	10
17	FILE	12
0	SKIP	0
37	FILFO	7

NO ERROR IN ABOVE ASSEMBLY.

```
CARDS   LI IC LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

.       CC000 PUNCHALLOC    PROGRAM   HAFFORC*11/24/64
.       CC001 PUNCHTAPE     MEANS     C4
.       CC002 BEGIN         EX-FCT    PUNCHTAPE*0000C00020            00000  13230 00764  TURN THE PAPER PUNCH ON
.       CC003               ENT  B2*240                               00001  12200 00030
.       CC004 L77A          JP   $*PUNCHTAPE*ACTIVEOUT                00002  63200 00002
.       CC005               OUT  PUNCHTAPE*W(LEADEROUT1               00003  74230 00143
.       CC006               RJP  B2*L77A                              00004  72200 00002
.       CC007               RJP  READTAPE                             00005  65000 00515  READ THE FIRST CARD
.       CC010               U-TAG     INBUF+17*INBUF                  00006  00355 00336
.       CC011               ENT  Q*W(INBUF+2)                         00007  10030 00340  CHECK TO SEE THAT THIS THE ALL
                                                                                           OCATION TAPE
.       CC012               SUB  C*W(ALLOC)*QZERO                     00010  27430 00366
.       CC013               JP   BEGIN*STOP                           00011  61400 00000
.       CC014               ENT  Q*W(INBUF+3)                         00012  10030 00341
.       CC015               SUB  Q*W(ATION)*QZERO                     00013  27430 00367
.       CC016               JP   BEGIN*STOP                           00014  61400 00000
.       CC017               ENT  A*BUF2                               00015  11000 00314  SET TO WRITE FROM BUF1 FIRST,
                                                                                           THEN ALTERNATE
.       CC020               LSH  A*15D                                00016  06000 00017
.       CC021               SEL  SET*BUF1                             00017  50000 00162
.       CC022               STR  A*W(BUFSW)                           00020  15030 00357  SET UP BUFFER SWITCH
.       CC023               ENT  B5*L(BUFSW)                          00021  12510 00357  B5 CONTAINS THE 1ST EMPTY CHAR
                                                                                           ACTER IN
.       CC024               ENT  A*W(CR)                              00022  11030 00361  THE CURRENT BUFFER
.       CC025               STR  A*W(0+B5)                            00023  15035 00000  START THE FIRST OUTPUT BUFFER
                                                                                           WITH A
.       CC026               STR  A*W(2+B5)                            00024  15035 00002  CARRIAGE RETURN, UPPER CASE, C
                                                                                           ARRAIGE
.       CC027               ENT  A*W(UC)                              00025  11030 00362  RETURN
.       CC030               STR  A*W(1+B5)                            00026  15035 00001
.       CC031               ENT  B5*B5+3                              00027  12505 00003
.       CC032               CL   B1                                   00030  12100 00000  CONVERT THE FIRST WORD TO FLEX
                                                                                           O
.       CC033               RJP  BCDTOFLEXO                           00031  65000 00124
.       CC034               ENT  Q*W(INBUF+2)                         00032  10030 00340
.       CC035               LSH  AC*6                                 00033  07000 00006
.       CC036               ENT  A*W(BCDTAB)                          00034  11030 00364
.       CC037               RSH  AQ*6                                 00035  03000 00006  FROM COLUMN ELEVEN ON
.       CC040               STR  Q*W(INBUF+2)                         00036  14030 00340
.       CC041               ENT  B1*2                                 00037  12100 00002
.       CC042               RJP  BCDTOFLEXO                           00040  65000 00124  CONVERT TO THE FIRST BLANK
.       CC043               COMMENT   THIS                                                 IS THE START OF THE MAIN LOOP
                                                                                           WHICH CONTINUES TO EOF
.       CC044 L14D          PUT  W(CR)*W(0+B5)                        00041  10030 00361  FOLLOW BY A CARRIAGE RETURN
                                                                      00042  14035 00000
.       CC045               JP   $*PUNCHTAPE*ACTIVEOUT                00043  63200 00043  WAIT FOR FREE OUT CHANNEL
.       CC046               ENT  A*W(BUFSW)                           00044  11030 00357  SET OUTPUT BUFFER CONTROL FROM
.       CC047               STR  A*L(BUFOUT)                          00045  15010 00356  BUFSW (BL)
.       CC050               STR  B5*U(BUFOUT)                         00046  16520 00356  AND B5 (EL-1)
.       CC051               STR  A*U(BUFSW)                           00047  15020 00357  SWITCH BUFFER SWITCH
.       CC052               RSH  A*15D                                00050  02000 00017  $
.       CC053               STR  A*L(BUFSW)                           00051  15010 00357  $
.       CC054               ENT  B5*L(BUFSW)                          00052  12510 00357  $
```

CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC055			OUT PUNCHTAPE*W(BUFOUT)	00053	74230	00356		PUNCH
.	CC056	NOTHERCARD		RJP READTAPE	00054	65000	00515		READ A CARD
.	CC057			U-TAG INBUF+4*INBUF	00055	00342	00336		
.	CC06C			ENT A*W(INBUF)	00056	11030	00336		
.	CC061			SEL CL*W(MSK2)	00057	52030	00157		$
.	CC062			SUB A*W(LEFTBLANK)*ANOT	00060	21530	00160		
.	CC063			JP NOTHERCARD	00061	61000	00054		IGNURE IF BLANK
.	CC064			CL B1*	00062	12100	00000		
.	CC065			RJP BCDTOFLEXO	00063	65000	00124		CONVERT LABEL
.	CC066			PUT W(TAB1*W(0+B5)	00064	10030	00360		ADD A TAB
					00065	14035	00000		
.	CC067			BSK B5*77777	00066	71500	77777		
.	CC070			ENT A*W(INBUF+2)	00067	11030	00340		CONVERT THE LOCATION
.	CC071			ENT Q*W(INBUF+3)	00070	10030	00341		
.	CC072			ENT B2*4	00071	12200	00004		
.	CC073			RSH AQ*18D*ANOT	00072	03500	00022		GET THE RIGHT FOUR CHARACTERS IN THE Q
.	CC074	L14Q		LSH AQ*6	00073	07000	00006		
.	CC075			SEL CL*W(MSK1)	00074	52030	00156		ISOLATE THE BCD CHARACTER
.	CC076			ENT B7*A	00075	12770	00000		GET IT TO B7
.	CC077			ENT A*W(TABLEBCD+B7)	00076	11037	00370		
.	CC100			STR A*W(0+B5)	00077	15035	00000		
.	CC101			BSK B5*77777	00100	71500	77777		
.	CC102			BJP B2*L14Q	00101	72200	00073		
.	CC103			JP L14D	00102	61000	00041		
.	CC104	ECF		JP $*PUNCHTAPE*ACTIVEOUT	00103	63200	00103		
.	CC105			PUT W(CR1*W(BUF1)	00104	10030	00361		FINISH WITH CR,LC,..
					00105	14030	00162		
.	CC106			PUT W(LC)*W(BUF1+1)	00106	10030	00363		
					00107	14030	00163		
.	CC107			PUT W(PERIOD)*W(BUF1+2)	00110	10030	00365		
					00111	14030	00164		
.	CC11C			STR Q*W(BUF1+3)	00112	14030	00165		
.	CC111			OUT PUNCHTAPE*W(FINISHPCH)	00113	74230	00123		
.	CC112			ENT B2*12D	00114	12200	00014		
.	CC113	L77B		JP $*PUNCHTAPE*ACTIVEOUT	00115	63200	00115		
.	CC114			OUT PUNCHTAPE*W(LEADEROUT)	00116	74230	00143		
.	CC115			BJP B2*L77B	00117	72200	00115		
.	CC116			JP $*PUNCHTAPE*ACTIVEOUT	00120	63200	00120		
.	CC117			EX-FCT PUNCHTAPE*0000000200	00121	13230	00765		
.	CC120			JP BEGIN*STOP	00122	61400	00000		
.	CC121	FINISHPCH		U-TAG BUF1+3*BUF1	00123	00165	00162		
.	CC122			COMMENT ENTER					WITH B1 SET WITH THE WORD IN INPUT (0-1101, AND B5
.	CC123			COMMENT SET					WITH THE FIRST EMPTY CHARACTER IN OUTPUT STORAGE.
.	CC124			COMMENT THE					PROGRAM THEN CONVERTS BCD TO FLEXO AND STORES CHARACTER
.	CC125			COMMENT BY					CHARACTER IN THE OUTPUT BUFFER . IT STOPS ON A BLANK.
.	CC126			COMMENT B1					CONTROLS WORDS IN, B2 IS CHARACTER COUNT, B5 IS
.	CC127			COMMENT OUTPUT					CONTROL

CARDS	LI IC	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	CC130	BCDTOFLEXO		ENTRY	00124	61000 00000	
.	CC131	L13C		ENT C*W(INBUF+B1)	00125	10031 00336	GET A WORD OF BCD
.	CC132			ENT B2*4	00126	12200 00004	
.	CC133	L13D		LSH AQ*6	00127	07000 00006	GET A CHARACTER
.	CC134			SEL CL*W(MSK1)	00130	52030 00156	ISOLATE IT
.	CC135			ENT 97*A	00131	12770 00000	
.	CC136			SUB A*W(BLANK)*ANOT	00132	21530 00161	IS IT A BLANK
.	CC137			JP L(BCDTOFLEXO)	00133	61010 00124	YES
.	CC140			ENT A*W(TABLEBCD+B7)	00134	11037 00370	NO, GET ITS FLEXO EQUIVALENT
.	CC141			STR A*W(0+B5)	00135	15035 00000	INTO THE OUTPUT TABLE
.	CC142			BSK B5*77777	00136	71500 77777	INCREMENT OUTPUT CONTROL
.	CC143			BJP B2*L13D	00137	72200 00127	ARE THERE MORE CHARACTERS
.	CC144			BSK B1*20	00140	71100 00020	NO, SET TO GET ANOTHER WORD
.	CC145			JP L13C	00141	61000 00125	
.	CC146			JP L(BCDTOFLEXO)	00142	61010 00124	
.	CC147	LEADEROUT		U-TAG LEADER+9D*LEADER	00143	00155 00144	
.	CC150	LEADER		0 0	00144	00000 00000	
.	CC151			0 0	00145	00000 00000	
.	CC152			0 0	00146	00000 00000	
.	CC153			0 0	00147	00000 00000	
.	CC154			0 0	00150	00000 00000	
.	CC155			0 0	00151	00000 00000	
.	CC156			0 0	00152	00000 00000	
.	CC157			0 0	00153	00000 00000	
.	CC160			0 0	00154	00000 00000	
.	CC161			0 0	00155	00000 00000	
.	CC162	MSK1		77777 77700	00156	77777 77700	
.	CC163	MSK2		777 77777	00157	00777 77777	
.	CC164	LEFTBLANK		20000 0	00160	20000 00000	
.	CC165	BLANK		0 20	00161	00000 00020	
.	CC166	BUF1		RESERVE 900	00162	00000 00000	
.	CC167	BUF2		RESERVE 180	00314	00000 00000	
.	CC170	INBUF		RESERVE 160	00336	00000 00000	
.	CC171	BUFOUT		0 0	00356	00000 00000	
.	CC172	BUFSW		0 0	00357	00000 00000	STARTS WITH BUF2,BUF1
.	CC173	TAB		0 51	00360	00000 00051	
.	CC174	CR		0 45	00361	00000 00045	
.	CC175	UC		0 47	00362	00000 00047	
.	CC176	LC		0 57	00363	00000 00057	
.	CC177	BCDTAB		0 15	00364	00000 00015	
.	CC200	PERIOD		0 42	00365	00000 00042	
.	CC201	ALLOC		20614 34346	00366	20614 34346	
.	CC202	ATION		63612 37146	00367	63612 37146	
.	CC203	TABLEBCD		0 4	00370	00000 00004	0
.	CC204			0 52	00371	00000 00052	1
.	CC205			0 74	00372	00000 00074	1 2
.	CC206			0 70	00373	00000 00070	2 3
.	CC207			0 64	00374	00000 00064	3 4
.	CC210			0 62	00375	00000 00062	4 5

CARDS	L1 ID LABEL	TA	STATEMENT	LOC	F JKR Y	NOTES
						5
.	CC211	0	66	00376	00000 00066	6
						6
.	CC212	0	72	00377	00000 00072	7
						7
.	CC213	0	60	00400	00000 00060	8
						8
.	CC214	0	33	00401	00000 00033	9
						9
.	CC215	0	37	00402	00000 00037	0
						10
.	CC216	0	4	00403	00000 00004	11
.	CC217	0	4	00404	00000 00004	12
.	CC220	0	51	00405	00000 00051	PSEUDO TAB
						13
.	CC221	0	4	00406	00000 00004	14
.	CC222	0	4	00407	00000 00004	15
.	CC223	0	4	00410	00000 00004	16
.	CC224	0	54	00411	00000 00054	/ 17
.	CC225	0	24	00412	00000 00024	S
						18
.	CC226	0	01	00413	00000 00001	T
						19
.	CC227	0	34	00414	00000 00034	U
						20
.	CC230	0	17	00415	00000 00017	V
						21
.	CC231	0	31	00416	00000 00031	W
						22
.	CC232	0	27	00417	00000 00027	X
						23
.	CC233	0	25	00420	00000 00025	Y
						24
.	CC234	0	21	00421	00000 00021	Z
						25
.	CC235	0	4	00422	00000 00004	26
.	CC236	0	44	00423	00000 00044	COMMA 27
.	CC237	0	46	00424	00000 00046	(28
.	CC240	0	4	00425	00000 00004	29
.	CC241	0	4	00426	00000 00004	30
.	CC242	0	4	00427	00000 00004	31
.	CC243	0	4	00430	00000 00004	32
.	CC244	0	32	00431	00000 00032	J
						33
.	CC245	0	36	00432	00000 00036	K
						34
.	CC246	0	11	00433	00000 00011	L
						35
.	CC247	0	7	00434	00000 00007	M
						36
.	CC250	0	6	00435	00000 00006	N
						37
.	CC251	0	3	00436	00000 00003	O

CARDS	L1	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
										38
.	CC252			0	15	00437	00000	00015	P	
										39
.	CC253			0	35	00440	00000	00035	Q	
										40
.	CC254			0	12	00441	00000	00012	R	
										41
.	CC255			0	4	00442	00000	00004	42	
.	CC256			0	4	00443	00000	00004	43	
.	CC257			0	4	00444	00000	00004	44	
.	CC260			0	4	00445	00000	00004	45	
.	CC261			0	4	00446	00000	00004	46	
.	CC262			0	4	00447	00000	00004	47	
.	CC263			0	4	00450	00000	00004	48	
.	CC264			0	30	00451	00000	00030	A	
										49
.	CC265			0	23	00452	00000	00023	B	
										50
.	CC266			0	16	00453	00000	00016	C	
										51
.	CC267			0	22	00454	00000	00022	D	
										52
.	CC270			0	20	00455	00000	00020	E	
										53
.	CC271			0	26	00456	00000	00026	F	
										54
.	CC272			0	13	00457	00000	00013	G	
										55
.	CC273			0	5	00460	00000	00005	H	
										56
.	CC274			0	14	00461	00000	00014	I	
										57
.	CC275			0	4	00462	00000	00004	58	
.	CC276			0	44	00463	00000	00044	,	
										59
.	CC277			0	42	00464	00000	00042	)	60
.	CC300			0	4	00465	00000	00004	61	
.	CC301			0	4	00466	00000	00004	62	
.	CC302			0	4	00467	00000	00004	63	
.	CC303	PRINT			ENTRY	00470	61000	00000		
.	CC304				RPL Y+1*L(PRINT)	00471	36010	00470		
.	CC305				JP L(PRINT)*STOP	00472	61410	00470		
.	CC306	INTAPE			52200 00010	00473	52200	00010		
.	CC307	TAPE			MEANS C15					MAGNETIC TAPES
.	CC310	STOREXRS			ENTRY	00474	61000	00000		STORE INDEX REGISTERS B2-B6
.	CC311				STR B2*U(UB2LB3)	00475	16220	00512		
.	CC312				STR B3*L(UB2LB3)	00476	16310	00512		
.	CC313				STR B4*U(UB4LB5)	00477	16420	00513		
.	CC314				STR B5*L(UB4LB5)	00500	16510	00513		
.	CC315				STR B6*U(UB6)	00501	16620	00514		
.	CC316				RTLJP L(STOREXRS)	00502	60110	00474		
.	CC317	ENTERXRS			ENTRY	00503	61000	00000		RESTORE INDEX REGISTERS B2-B6

CARDS	LI IC LABEL	TA STATEMENT	LOC	F JKB Y	NOTES
.	CC320	ENT B2*U(UB2LB3)	00504	12220 00512	
.	CC321	ENT B3*L(UB2LB3)	00505	12310 00512	
.	CC322	ENT B4*U(UB4LB5)	00506	12420 00513	
.	CC323	ENT B5*L(UB4LB5)	00507	12510 00513	
.	CC324	ENT B6*U(UB6)	00510	12620 00514	
.	CC325	EXIT	00511	61010 00503	
.	CC326 UB2LB3	0 0	00512	00000 00000	
.	CC327 UB4LB5	0 0	00513	00000 00000	
.	CC330 UB6	0 0	00514	00000 00000	
.	CC331 READTAPE	ENTRY	00515	61000 00000	READ SPURT 210 TAPE
.	CC332	RJP STOREXRS	00516	65000 00474	
.	CC333	PUT L(READTAPE)*L(INBUFFER)	00517	10010 00515	
			00520	14010 00523	
.	CC334	RPL Y+1*L(READTAPE)	00521	36010 00515	INDEX RETURN POINT
.	CC335	CL B2*	00522	12200 00000	
.	CC336 INBUFFER	IN TAPE*W(0)	00523	73670 00000	ESTABLISH INPUT BUFFER
.	CC337	PUT W(JPC15EXT)*W(35)	00524	10030 00623	
			00525	14030 00035	
.	CC340	EX-FCT TAPE*W(INTAPE)	00526	13670 00473	BINARY-HO TAPE ON UNIT 2 OR 3
.	CC341 WAITI	JP WAITI	00527	61000 00527	WAIT FOR INTERRUPT
.	CC342 C15EXTINT	STR TAPE*W(STATUS)	00530	17670 00735	STATUS WORD
.	CC343	ENT A*U(STATUS)	00531	11020 00735	
.	CC344	RSH A*11D	00532	02000 00013	
.	CC345	ADD A*STATUSCODE	00533	20000 00562	
.	CC346	STR A*L(INTERJUMP)	00534	15010 00536	
.	CC347	RTL	00535	60000 00000	
.	CC350 INTERJUMP	JP L(0)	00536	61010 00000	GO TO APPROPRIATE STATUS ROUTI
					NE
.	CC351 BACK	RJP ENTERXRS	00537	65000 00503	
.	CC352	EXIT	00540	61010 00515	
.	CC353 INTERLOCK	PUT W(UNITNOINT)*W(LOCKP)	00541	10030 00561	INTERLOCK ROUTINE
			00542	14030 00554	
.	CC354	RJP PRINT	00543	65000 00470	PRINT INTERLOCK MESSAGE
.	CC355	11D INTERLOCKP	00544	00013 00546	
.	CC356	JP INBUFFER*STOP	00545	61400 00523	
.	CC357 INTERLOCKP	FD 6*THERE IS AN INTERLOCK ON UNIT	00546	31151 22712	
			00547	05163 00506	
			00550	23051 62331	
			00551	12272 12410	
			00552	20052 42305	
			00553	32231 63105	
.	CC360 LOCKP	FD 5*C. CORRECT AND START.	00554	10750 50510	
			00555	24272 71210	
			00556	31050 62311	
			00557	05303 10627	
			00560	31750 50505	
.	CC361 UNITNOINT	FD 1*C.	00561	10750 50505	
.	CC362 STATUSCODE	00 MACHERR	00562	00000 00710	NOT USED
.	CC363	04 MACHERR	00563	00004 00710	NOT USED
.	CC364	10 MACHERR	00564	00010 00710	NOT USED
.	CC365	14 MACHERR	00565	00014 00710	NOT USED
.	CC366	20 MACHERR	00566	00020 00710	CHARACTER SYNC SEQUENCE ERROR

CARDS	L1	IC	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.		CC367		24	INBUFFER	00567	00024	00523		REWINDING
.		CC370		30	MACHERR	00570	00030	00710		CHAR SYNC CHAR COUNT ERROR
.		CC371		34	MACHERR	00571	00034	00710		FUNCTION WORD ERROR
.		CC372		40	PACK	00572	00040	00537		NORMAL COMPLETION
.		CC373		44	PARITY	00573	00044	00624		PARITY ERROR
.		CC374		50	MACHERR	00574	00050	00710		CONTROL UNIT SEQUENCE ERROR
.		CC375		54	WRITEEOF	00575	00054	00705		END OF FILE
.		CC376		60	INPUTAPEND	00576	00060	00736		END OF TAPE
.		CC377		64	MACHERR	00577	00064	00710		NOT USED
.		CC400		70	MACHERR	00600	00070	00710		ABNORMAL FRAME COUNT
.		CC401		74	INTERLOCK	00601	00074	00541		INTERLOCK FAULT
.		CC402	MACHFAULT	FD	10D*A MACHINE FAULT HAS OCCURRED ON MAGNETIC TAPE UNIT	00602	06052	20610		
						00603	15162	31205		
						00604	13063	22131		
						00605	05150	63005		
						00606	24101	03227		
						00607	27121	10524		
						00610	23052	20614		
						00611	23123	11610		
						00612	05310	62512		
						00613	05322	31631		
.		CC403	UNITNO	FD	5*C . THE STATUS CODE IS	00614	10057	50505		
						00615	31151	20530		
						00616	31063	13230		
						00617	05102	41112		
						00620	05163	00505		
.		CC404	FCSTATCODE	FD	2*	00621	05050	50505		
						00622	05050	50505		
.		CC405	JPC15EXT	RILJP	C15EXTINT	00623	60100	00530		
.		CC406	PARITY	BSK	B2*9D	00624	71200	00011		PARITY ROUTINE HAVE WE READ 10 .....
.		CC407		JP	TRYAGAIN	00625	61000	00636		NO. READ RECORD AGAIN
.		CC410		PUT	L(UNITNOINT)*U(PMSG)	00626	10020	00561		
						00627	14020	00656		
.		CC411		RJP	PRINT	00630	65000	00470		PRINT PARITY MESSAGE
.		CC412		11D	PARITYMSG	00631	00013	00644		
.		CC413		BSK	B6*50D	00632	71600	00062		
.		CC414		BSK	B6*51D	00633	71600	00063		
.		CC415		EXIT		00634	61010	00515		NORMAL EXIT
.		CC416	RETRY	20300	00004	00635	20300	00004		
.		CC417	TRYAGAIN	PUT	L(INTAPE)*L(RETRY)	00636	10010	00473		
						00637	14010	00635		
.		CC420		EX-FCT	TAPE*W(RETRY)	00640	13670	00635		BACKSPACE REC WITHOUT INTERRUPT
.		CC421		RPT	77777	00641	70000	77777		
.		CC422		NO-OP		00642	12000	00000		
.		CC423		JP	INBUFFER	00643	61000	00523		READ RECORD AGAIN
.		CC424	PARITYMSG	FD	10D*A PARITY OCCURRED 10 TIMES ON MAGNETIC TAPE UNIT	00644	06052	50627		
						00645	16313	60524		
						00646	10103	22727		
						00647	12110	56124		

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CARDS   LI IC LABEL      TA STATEMENT                                    LOC    F JKP Y      NOTES

                                                                         00650  05311 62212
                                                                         00651  30052 42305
                                                                         00652  22061 42312
                                                                         00653  31161 00531
                                                                         00654  06251 20532
                                                                         00655  23163 10505
      .   CC425 PMSG         FD   1*C.                                  00656  10750 50505
      .   CC426 TAPEPARMSG   RESERVE   11C                             00657  00000 00000  BCO PARITY MESSAGE
      .   CC427 FDTAPEPAR    FD   10D*A PARITY OCCURRED ON INPUT TAPE   00672  06052 50627
                               IN FOLLOWING LI
                                                                         00673  16313 60524
                                                                         00674  10103 22727
                                                                         00675  12110 52423
                                                                         00676  05162 32532
                                                                         00677  31053 10625
                                                                         00700  12051 62305
                                                                         00701  13242 12124
                                                                         00702  34162 31405
                                                                         00703  21160 50505
      .   CC430               FD   1*NE.                                 00704  23127 50505
      .   CC431 WRITEEOF      RJP  ENTERXRS                           00705  65000 00503
      .   CC432               JP   EOF                                00706  61000 00103
      .   CC433 UNIT210       FD   1* C.                              00707  05107 50505
      .   CC434 MACHERR       PUT  C(UNIT210)*C(UNITNO)               00710  10020 00707
                                                                         00711  14020 00614
      .   CC435 MACHERROR     RJP  PRINT                              00712  65000 00470
      .   CC436               TCO  MACHFAULT                          00713  00012 00602
      .   CC437               RJP  ENTERXRS                           00714  65000 00503
      .   CC440               JP   L(READTAPE)*STOP                   00715  61410 00515
      .   CC441 KCCTTOFD      ENTRY                                   00716  61000 00000
      .   CC442               CL   A*                                 00717  11000 00000
      .   CC443               LSH  AQ*3                               00720  07000 00003
      .   CC444               LSH  A*3                                00721  06000 00003
      .   CC445               LSH  AQ*3                               00722  07000 00003
      .   CC446               LSH  A*3                                00723  06000 00003
      .   CC447               LSH  AQ*3                               00724  07000 00003
      .   CC450               LSH  A*3                                00725  06000 00003
      .   CC451               LSH  AQ*3                               00726  07000 00003
      .   CC452               LSH  A*3                                00727  06000 00003
      .   CC453               LSH  AQ*3                               00730  07000 00003
      .   CC454               NO-OP                                   00731  12000 00000
      .   CC455 DUMMY         ADD  A*W(EXCESS60)                      00732  20030 00734
      .   CC456               EXIT                                    00733  61010 00716
      .   CC457 EXCESS60      60606      06060                        00734  60606 06060
      .   CC460 STATUS        0    0                                  00735  00000 00000
      .   CC461 INPUTAPEND    PUT  W(ENDTAPEU)*W(ENDTAPEM)            00736  10030 00762
                                                                         00737  14030 00754
      .   CC462               RJP  PRINT                              00740  65000 00470  PRINT END-OF-TAPE MESSAGE
      .   CC463               13D  ENDOFTAPM                          00741  00015 00745
      .   CC464               RJP  ENTERXRS                           00742  65000 00503
      .   CC465               JP   BEGIN*STOP                         00743  61400 00000
      .   CC466               EXIT STOP                               00744  61410 00716
      .   CC467 ENDOFTAPM     FD   7*AN END OF TAPE HAS OCCURRED ON UN00745  06230 51223
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CARDS	LI IC LABEL	TA STATEMENT	LOC	F JKB Y	NOTES
		IT			
			00746	11052 41305	
			00747	31062 51205	
			00750	15063 00524	
			00751	10103 22727	
			00752	12110 52423	
			00753	05322 31631	
.	CC470 ENDTAPEM	FD 6* . HANG NEW TAPE AND START.	00754	05057 50515	
			00755	06231 40523	
			00756	12340 53106	
			00757	25120 50623	
			00760	11053 03106	
			00761	27317 50505	
.	CC471 ENDTAPEU	FD 1* C.	00762	05107 50505	
.	CC472	RESERVE 1	00763	00000 00000	
			00764	00000 00020	
			00765	00000 00200	

END OF LISTING

PUNCHALLOC HAFFORD*11/24/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
A$$$$$1111	00764	A$$$$$1112	00765	ACQAZIM	63071
ACQELEV	63075	ACQUI	63427	ACTUALTIME	63142
AOSCN	63416	AESCN	63417	ALLOC	00366
ALNGOFFSET	63517	ARCOFAZIM	63524	ARCOFDEC	63526
ARCOFELEV	63522	ARCOFRA	63530	ASTRODEC	63106
ASTRORA	63105	ATIDN	00367	AUPEREQUAT	63341
AZELOTIME	63532	AZELRXSCAN	63500	AZIM	63053
AZIMOFFSET	63512	AZIMOUT	64000	AZIMOVER	63325
AZIMADD	63442	AZIMIN	75000	AZMTHSCAN	63501
BODYSIZE	63462	BACK	00537	BCOTOFLEXO	00124
BCDTAB	00364	BEGIN	00000	BLANK	00161
BLASTOFF	63146	BUFOUT	00356	BOF1	00162
BUF2	00314	BUFSW	00357	COCON	63414
CONVERTIME	63135	CORCT	63420	COSORIENT	63065
COSAZEL	63070	C1SEXTINT	00530	CAZIM	63060
CELBODY	63113	CELCOMPGM	63424	CELEV	63061
CELTIME	63133	CHCOR	63422	CHPAR	63431
CR	00361	CRANGE	63057	CRSSOFFSET	63516
DOPPOUT	66000	DOPPAOO	63444	DATANALYZE	63425
DAY	63150	DEC	63003	DECOFFSET	63515
DECDOT	63010	DECLINSCAN	63505	DELTATEE	63316
DSECONDS	63141	DUMMY	00732	DUMSECTTG	63154
DYDMP	63421	EOF	00103	ELEV	63054
ELEVOFFSET	63513	ELEVOUT	65000	ELEVADO	63443
ELEVIN	76000	ELVTNSCAN	63502	ENDOFTAPM	00745
ENDTAPEM	00754	ENDTAPEU	00762	ENTERXRS	00503
EQUATOR	63323	ESTSHIFTED	63143	EXCESS60	00734
EXPNAME	63350	FDSTATCODE	00621	FOTAPEPAR	00672
FINISHPCH	00123	FIRSTELEV	63104	FIRSTHRU	63153
FLATTENING	63337	FRAMESIZE	63101	FREQUENCY	63317
GEOCENLAT	63322	GEODETLAT	63321	GMTMOD024	63145
GMTSHIFTED	63144	HOLDNDHOLD	63511	HOURMINUTE	63137
HOURREG	63151	HEIGHT	63326	ID10RADID	66777
ID11RADIO	67776	ID12RADIO	67777	ID13RADIO	70775
ID14RADIO	70776	ID15RADIO	71776	ID16RADIO	71777
ID17RADIO	72776	ID18RADIO	72777	ID19RADIO	73776
ID1CELCOR	63000	ID1ENTPNT	63410	ID1RADCOR	63050
ID1RADIO	63440	IO1RECRD	63210	ID1SYSENT	77576
ID1SYSNAM	77676	IO1SYSPAR	63310	IO1TIME	63130
ID20RADIO	73777	ID21RADIO	74776	ID22RADIO	74777
ID23RADIO	75776	ID24RADIO	75777	ID25RADIO	76775
ID26RADIO	76776	ID2CELCOR	63001	IO2ENTPNT	63411
ID2RADCOR	63051	ID2RADIO	63441	IO2RECRD	63211
ID2SYSENT	77577	ID2SYSNAM	77677	ID2SYSPAR	63311
ID2TIME	63131	ID3RADIO	63776	ID4RADIO	63777
ID5RADIO	64776	ID6RADIO	64777	ID7RADIO	65776
ID8RADIO	65777	ID9RADIO	66776	INAZIMAOO	63446
INBUF	00336	INBUFFER	00523	INELEVAOO	63447
INPUTAPEND	00736	INTAPE	00473	INTER	63413
INTERAZIM	72000	INTERCOM	63426	INTERDOPP	74000
INTERELEV	73000	INTERJUMP	00536	INTERLOCK	00541

..... SPURT OUTPUT NO. 211 .....

PUNCHALLCC HAEFORO*11/24/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
INTERLOCKP	00546	INTERLCKSW	63460	INTERRANGE	76777
JPC15EXT	00623	KOCTTOFD	00716	KMPERNM	63342
KYBRDLEVEL	63110	LOCKP	00554	LONGITUDE	63320
L13C	00125	L13D	00127	L14D	00041
L14Q	00073	L77A	00002	L77B	00115
LC	00363	LEADER	00144	LEADEROUT	00143
LEFTBLANK	00160	LSPERAU	63336	MACHERR	00710
MACHERROR	00712	MACHFAULT	00602	MAINSWITCH	63334
MCPFILLER	71000	MCPGM	63412	MILLSTNADD	63451
MINREG	63152	MSFREQ	63332	MSK1	00156
MSK2	00157	NOTHERCARD	00054	NMPERAU	63340
POLE	63324	PARITY	00624	PARITYMSG	00644
PERIOD	00365	PERIODAZIM	63523	PERIODDEC	63525
PERIODELEV	63521	PERIODRA	63527	PLOTP	63436
PLANP	63434	PMSG	00656	PREVIOUSTM	63461
PRINT	00470	PRLOG	63423	ROTATEAEBX	63507
ROTATERAON	63506	ROTATEROBX	63510	RA	63002
RAOFFSET	63514	RADOT	63007	RAOARMODE	63312
RADCBXSCAN	63503	RADECOTIME	63531	RADIODEC	63541
RADIOMETER	63102	RADIORA	63540	RAOIUS	63006
RADIUSDOT	63011	RANGE	63052	RANGEOUT	70777
RANGEADO	63445	RANGEDOT	63062	RASCTNSCAN	63504
ROMTR	63430	RDXXX	63433	READTAPE	00515
RECORDSIZE	63112	RECAZIM	67000	RECELEV	70000
RECFILE	63212	RECRD	63415	RECRDSWTCH	63155
RELEASESW	63156	RETRY	00635	SAZIM	63055
SCELTIME	63134	SDEC	63005	SECONDS	63140
SELEV	63056	SIDERTIME	63012	SINORIENT	63064
SINAZEL	63066	SKIP	63331	SRA	63004
SRADTIME	63136	STOREXRS	00474	STATUS	00735
STATUSCODE	00562	SYNCTIMING	63542	SYSCOMREG1	63452
SYSCOMREG2	63453	SYSCOMREG3	63454	SYSCOMREG4	63455
SYSCOMREG5	63456	SYSCOMREG6	63457	SYSENTRIES	77600
SYSNAMES	77700	SYSTAT1	63313	SYSTAT2	63314
SYSTATD	63315	TAB	00360	TABLEBCD	00370
TAPEPARMSG	00657	TIMECORR	63107	TIMEMODE	63103
TIMEP	63435	TIMETOHOLD	63520	TRUERANGE	63063
TRUETIME	63132	TRYAGAIN	00636	TTYSTATUS	63111
TWOSECDOP	63017	UB2LB3	00512	UB4LB5	00513
UB6	00514	UC	00362	UNIT210	00707
UNITNO	00614	UNITNOINT	00561	VELOFLIGHT	63335
VIZDEC1	63014	VIZDEC2	63016	VIZRA1	63013
VIZRA2	63015	WAIT1	00527	WFORO	63432
WFA00	63450	WFFREQ	63333	WRITEEOF	00705
YEARMONTH	63147	YRTRAN	63327	ZRTRAN	63330

END OF LISTING

..... SPOPT OUTPUT NO. 212 .....

PUNCHALLOC HAFFOPO•11/24/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
BEGIN	00000	L77A	00002	L14D	00041
NOTHEPCARD	00054	L14Q	00073	EOF	00103
L77B	00115	FINISHPCH	00123	BCOTOELEXO	00124
L13C	00125	L130	00127	LEADEROUT	00143
LEADER	00144	MSK1	00156	MSK2	00157
LEFTBLANK	00160	BLANK	00161	BOE1	00162
BUF2	00314	INBOF	00336	BOFOUT	00356
BOFSW	00357	TAB	00360	CP	00361
UC	00362	LC	00363	BCDTAB	00364
PERIOD	00365	ALLOC	00366	ATION	00367
TABLEBCD	00370	PRINT	00470	INTAPE	00473
STOPEXRS	00474	ENTEPXRS	00503	OB2LB3	00512
OB4LB5	00513	UB6	00514	READTAPE	00515
INBUFFER	00523	WAIT1	00527	C15EXTINT	00530
INTERJUMP	00536	BACK	00537	INTERLOCK	00541
INTERLOCKR	00546	LOCKR	00554	UNITNOINT	00561
STATOSCODE	00562	MACHFAULT	00602	UNITNO	00614
FDSTATCODE	00621	JPC15EXT	00623	RARITY	00624
RETRY	00635	TRYAGAIN	00636	PARITYMSG	00644
PMSG	00656	TAPEPAPMSG	00657	FDTAPEPAR	00672
WRITEEOF	00705	UNIT210	00707	MACHERR	00710
MACHERROP	00712	KOCTTOFO	00716	OOMMY	00732
EXCESS60	00734	STATUS	00735	INPUTAPENO	00736
ENDOFTAPM	00745	ENDTAPEM	00754	ENDTAPEU	00762
A$$$$$1111	00764	A$$$$$1112	00765	ID1CELCOP	63000
I02CELCOP	63001	RA	63002	DEC	63003
SRA	63004	SDEC	63005	RADIUS	63006
RAOOT	63007	OECOOT	63010	RADIUSDOT	63011
SIDERTIME	63012	VIZPA1	63013	VIZOEC1	63014
VIZRA2	63015	VIZOEC2	63016	TWOSECDOP	63017
I01PAOCOR	63050	I02RADCOR	63051	RANGE	63052
AZIM	63053	ELEV	63054	SAZIM	63055
SELEV	63056	CRANGE	63057	CAZIM	63060
CELEV	63061	RANGEDOT	63062	TRUERANGE	63063
SINORIENT	63064	COSORIENT	63065	SINAZEL	63066
COSAZEL	63070	ACQAZIM	63071	ACQELEV	63075
FRAMESIZE	63101	RADIOMETER	63102	TIMEMODE	63103
FIRSTELEV	63104	ASTROPA	63105	ASTRODEC	63106
TIMECORR	63107	KYBROLEVEL	63110	TTYSTATOS	63111
RECORDSIZE	63112	CELBODY	63113	IDITIME	63130
ID2TIME	63131	TROETIME	63132	CELTIME	63133
SCELTIME	63134	CONVERTIME	63135	SRADTIME	63136
HOURMINUTE	63137	SECONDS	63140	OSECONDS	63141
ACTUALTIME	63142	ESTSHIFTED	63143	GMTSHIFTED	63144
GMTMOD024	63145	BLASTOFF	63146	YEARMONTH	63147
DAY	63150	HOURREG	63151	MINREG	63152
FIRSTHPU	63153	OOMSECTTG	63154	RECRDSWTCH	63155
RELEASESW	63156	ID1RECRD	63210	ID2RECRD	63211
RECFILE	63212	I01SYSPAR	63310	I02SYSPAR	63311
RADARMODE	63312	SYSTAT1	63313	SYSTAT2	63314
SYSTATO	63315	DELTATEE	63316	FREQUENCY	63317

..... SPURT OUTPUT NO. 212 .....

PUNCHALLOC HAFFORD*11/24/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
LONGITUDE	63320	GEODETLAT	63321	GEOCENLAT	63322
EQUATOR	63323	POLE	63324	AZIMOVER	63325
HEIGHT	63326	YRTRAN	63327	ZRTRAN	63330
SKIP	63331	MSFREQ	63332	WFFREQ	63333
MAINSWITCH	63334	VELOFLIGHT	63335	LSPERAU	63336
FLATTENING	63337	NMPERAU	63340	AUPEREQUAT	63341
KMPERNM	63342	EXPNAME	63350	IO1ENTPNT	63410
ID2ENTPNT	63411	MCPGM	63412	INTER	63413
COCON	63414	RECRD	63415	AOSCN	63416
AESCN	63417	CORCT	63420	OYOMP	63421
CHCOR	63422	PRLOG	63423	CELCOMPGM	63424
DATANALYZE	63425	INTERCOM	63426	ACQUI	63427
RDMTR	63430	CHPAR	63431	WFORO	63432
RDXXX	63433	PLANP	63434	TIMEP	63435
PLOTP	63436	ID1RAOIO	63440	IO2RAOIO	63441
AZIMADO	63442	ELEVAOD	63443	DOPPAOO	63444
RANGEADD	63445	INAZIMADD	63446	INELEVAOO	63447
WFADO	63450	MILLSTNADO	63451	SYSCOMREG1	63452
SYSCOMREG2	63453	SYSCOMREG3	63454	SYSCOMREG4	63455
SYSCOMREG5	63456	SYSCOMREG6	63457	INTERLCKSW	63460
PREVIOUSTM	63461	BODYSIZE	63462	AZELBXSCAN	63500
AZMTHSCAN	63501	ELVTNSCAN	63502	RAOCBXSCAN	63503
RASCINSCAN	63504	OECLINSCAN	63505	ROTATERAON	63506
RDTATEAEBX	63507	ROTATEROBX	63510	HOLONOHOLO	63511
AZIMOFFSET	63512	ELEVOFFSET	63513	RAOFFSET	63514
DECOFFSET	63515	CRSSOFFSET	63516	ALNGOFFSET	63517
TIMETOHOLD	63520	PERIDOELEV	63521	ARCOFELEV	63522
PERIODAZIM	63523	ARCOFAZIM	63524	PERIODOEC	63525
ARCOFDEC	63526	PERIODRA	63527	ARCOFRA	63530
RADECOTIME	63531	AZELOTIME	63532	RADIDRA	63540
RADIODEC	63541	SYNCTIMING	63542	IO3RAOIO	63776
ID4RADID	63777	AZIMOUT	64000	IO5RAOIO	64776
ID6RADID	64777	ELEVOUT	65000	IO7RAOIO	65776
ID8RADIO	65777	OOPPOUT	66000	IO9RAOIO	66776
ID1DRADIO	66777	RECAZIM	67000	IO11RAOIO	67776
ID12RAOIO	67777	RECELEV	70000	IO13RAOIO	70775
ID14RADIO	70776	RANGEOUT	70777	MCPFILLER	71000
ID15RADIO	71776	IO16RADIO	71777	INTERAZIM	72000
ID17RADIO	72776	ID18RADIO	72777	INTERELEV	73000
ID19RAOIO	73776	ID20RAOIO	73777	INTEROOPP	74000
ID21RAOIO	74776	ID22RADIO	74777	AZIMIN	75000
ID23RADIO	75776	IO24RADIO	75777	ELEVIN	76000
ID25RADIO	76775	ID26RADIO	76776	INTERRANGE	76777
ID1SYSENT	77576	ID2SYSENT	77577	SYSENTRIES	77600
ID1SYSNAM	77676	ID2SYSNAM	77677	SYSNAMES	77700

END OF LISTING

CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC0CC	SYSLOADER		PROGRAM JDD*4/8/65					
.	CC001			COMMENT BJP					FOR RPT FOR B/S
.	CC002	SYSLOADER		EQUALS 70000					
.	CC003	TYPE		MEANS C2					TYPEWRITER KEYBOARD
.	CC004	CLOCK		MEANS C7					BROMEGAN CLOCK
.	CC005	TAPE		MEANS C15					MAGNETIC TAPES
.	CC006	SYSLOADER		U-TAG SYSLOR*SYSLOR	7C000	7CCC2	7CCC2		
.	CC007			FC 1*SYSLD	7C001	30363	C2111		
.	CC01C	SYSLOR		RJP PRINT	7C002	65CCC	7C767		
.	CC011			11D ASKIO	7C003	CCC13	7C1C7		
.	CC012	PUTCNCE		PUT W(137)*W(SKIP)	7C004	1CC3C	CC137		
					7C005	14C3C	63331		
.	CC013	TYPEID		RJP CRLERT	7C006	65CCC	7C211		
.	CC014			RJP INCOME	7C007	65CCC	7C225		
.	CC015			IN TYPE*W(BCWREPLY)*MONITOR	7C010	7513C	7C3C4		
.	CC016			NC-OP	7C011	12CCC	CCCCC		
.	CC017	LOGINFO		RJP PRINT	7C012	65CCC	7C767		
.	CC02C			6 ELECT	7C013	CCCC6	71642		
.	CC021			RJP INCOME	7C014	65CCC	7C225		WHICH PART OF PROGRAM IS WANTE D
.	CC022			IN TYPE*W(BCWREPLY)*MONITOR	7C015	7513C	7C3C4		
.	CC023			NC-OP	7C016	12CCC	CCCCC		NC CONVERSION TO FO
.	CC024			ENT A*W(NUMBER)	7C017	11C3C	7C31C		MUST BE 1,2 OR 3
.	CC025			JP LOGINFO*ANEG	7C020	6C7CC	7CC12		
.	CC026			CCM A*5*YMORE	7C021	C47CC	CCCC5		
.	CC027			JP LOGINFO	7C022	61CCC	7CC12		
.	CC03C			ENT B1*L(NUMBER)	7C023	12110	7C31C		1,LOAD 2=BOOT 3=SEARCH
.	CC031			JP L(WHICHONE+B1)	7C024	61011	7CC25		
.	CC032	WHICHONE		C LOGINFO	7C025	CCCCC	7CC12		C IS ERROR
.	CC033			G ASKBASE	7C026	CCCCC	7CC32		1 IS LOADER
.	CC034			G BOOTSTRAP	7C027	CCCCC	717C6		2 IS BOOTSTRAPPER
.	CC035			C CCP	7C030	CCCCC	72C3C		3 IS MAKE SEARCH FORMAT
.	CC036			C CPP	7C031	CCCCC	72125		4 IS DATA PR PGMS
.	CC037	ASKBASE		RJP PRINT	7C032	65CCC	7C767		ASK BASE ADDRESS IF NOT 10000
.	CC04C			4 WHATBASE	7C033	CCCC4	7C122		
.	CC041			CL W(PMODE)	7C034	16C3C	7165C		
.	CC042			RJP INCOME	7C035	65CCC	7C225		LOG BASE ADDRESS IF NOT 10000
.	CC043			IN TYPE*W(BCWREPLY)*MONITOR	7C036	7513C	7C3C4		
.	CC044			NC-OP	7C037	12CCC	CCCCC		
.	CC045			ENT A*W(NUMBER)	7C040	11C3C	7C31C		
.	CC046			JP USE10000*AZERO	7C041	6C4CC	7CC47		BASE ADRS 10000 IF NC REPLY
.	CC047			PUT W(NUMBER)*W(STOREBASE)	7C042	1CC3C	7C31C		BASE ADDRESS OF SYSTEM LOADING
					7C043	14C3C	7C127		
.	CC05C			PUT W(NUMBER)*W(BASEADRS)	7C044	1CC3C	7C31C		BASE ADDRESS OF PROGRAM BEING LOAD
					7C045	14C3C	7C4C4		
.	CC051			JP CKKEY1	7C046	61CCC	7CC52		
.	CC052	USE10000		PUT 6CCC*L(STOREBASE)	7C047	1CCCC	C6CCC		
					7C050	14C1C	7C127		
.	CC053			STR C*W(BASEADRS)	7C051	14C3C	7C4C4		
.	CC054	CKKEY1		STR C*L(CLEAROUT)	7C052	14C1C	7CC57		CLEAR CORE STARTING AT BASE AD DRESS

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CARDS    LI IO LABEL      TA STATEMENT                                  LOC     F JKB Y      NOTES

   .     CC055              CP   C*                                     7C053   14CCC CCCCC
   .     CC056              ACD  Q*70000                                7C054   26CCC 7CCCC  BASE ADDRESS OF SYSLOADER
   .     CC057              STR  C*L(NUMCLEARS)                         7C055   14C1C 7CC56
   .     CC06C NUMCLEARS    RPT  C*ADV                                  7C056   7C1CC CCCCC
   .     CC061 CLEAROUT     CL   W(C)                                   7C057   16C3C CCCCC
   .     CC062              PUT  W(137)*W(SKIP)                         7C06C   1CC3C CC137
                                                                        7C061   14C3C 63331
   .     CC063              JP   $+2*KEY1                               7C062   611CC 7CC64
   .     CC064              RJP  HEADCOLMS                              7C063   65CCC 7C132
   .     CC065              CL   W(TABCT)                               7C064   16C3C 7C13I  NAME AND ENTRANCE TABLE COUNT

   .     CC066 LOADTAPE     RJP  MAINLOAD                               7C065   65CCC 7C314
   .     CC067 ATENDOFILE   RJP  PRINT                                  7C066   65CCC 7C767
   .     CC07C              1    COMPLETE                               7C067   CCCC1 7C13C  SYSTEM LOADING COMPLETE
   .     CC071 END          ENT  B2*W(TABCT)                            7C070   1223C 7C131
   .     CC072              CL   W(SYSNAMES+B2)                         7C071   16C32 777CC
   .     CC073              CL   W(SYSENTRIES+B2)                       7C072   16C32 776CC
   .     CC074              ENT  A*W(PMODE)                             7C073   11C3C 7165C
   .     CC075              JP   RETCOP*ANOT                            7C074   6C5CC 72107
   .     CC076              JP   $+2*KEY2                               7C075   612CC 7CC77
   .     CC077              JP   ASKAGAIN                               7C076   61CCC 72C14
   .     CC1CC              RJP  PRINT                                  7C077   65CCC 7C767
   .     CC101              3    ECFON4                                 7C100   CCCC3 71623
   .     CC102              RJP  INCCME                                 7C101   65CCC 7C225
   .     CC103              IN   TYPE*W(BCWREPLY)*MONITOR               7C102   7513C 7C304
   .     CC104              NC-OP                                       7C103   12CCC CCCCC
   .     CC105              ENT  A*W(NUMBER)*AZERC                      7C104   1143C 7C31C
   .     CC106              EX-FCT    TAPE*023CCCCC1C                   7C105   13670 72362
   .     CC107              JP   ASKAGAIN                               7C106   61CCC 72C14
   .     CC11C ASKIO        FC   11C*KEY1 ON=NO LOG. KEY2 ON= OLP IN    7C107   20123 66105
                            PUT... ENTER DATE ETC.
                                                                        7C110   24234 42324
                                                                        7C111   C5212 41475
                                                                        7C112   C52C1 23662
                                                                        7C113   C5242 34405
                                                                        7C114   11322 5C516
                                                                        7C115   23253 23175
                                                                        7C116   7575C 51223
                                                                        7C117   31122 7C511
                                                                        7C12C   C6311 2C512
                                                                        7C121   31107 5C505
   .     CC11I WHATBASE     FC   4*B/A(UNLESS 60CC)                     7C122   C774C 65132
                                                                        7C123   23211 23C3C
                                                                        7C124   C5662 42424
                                                                        7C125   4CC5C 5C505
   .     CC112 MCPID        FC   1*MCPGM                                7C126   22102 51422
   .     CC113 STOREBASE    C    C                                      7C127   CCCCC CCCCC  BASE ACCRESS FOR CURRENT LOADI
                                                                                            NG
   .     CC114 COMPLETE     FC   1*EOF                                  7C130   I2241 3C505
   .     CC115 TABCT        C    C                                      7C131   CCCCC CCCCC  COUNTER FOR TABLE ENTRIES
   .     CC116 HEADCOLMS    ENTRY                                       7C132   61CCC CCCCC  HEAD COLUMNS FOR PORGRAM LOG I
                                                                                            F KEY 1 ON
   .     CC117              RJP  ORLERT                                 7C133   65CCC 7C211
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CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	0C120		PUT	L(DESIRED)*L(CHGADR)	70134	100100 70151	TO ENABLE PRINT WITHOUT LINE F EEDS
					70135	14010 71016	
.	0C121		PUT	W(NOCRLFS)*W(STORECR-1)	70136	100300 70147	
					70137	14030 71011	
.	0C122		RJP	PRINT	70140	65000 70767	
.	0C123		150	COLUMNHEAD	70141	00017 70153	
.	0C124		RJP	PRINT	70142	65000 70767	
.	0C125		150	SECNDHEAD	70143	00017 70172	
.	0C126		PUT	L(ASWAS)*L(CHGADR)	70144	100100 70152	PUT LINE FEEDS BACK IN PRINT R T
					70145	14010 71016	
.	0C127		EXIT		70146	61010 70132	
.	0C130	NOCRLFS	CL	A*	70147	11000 00000	
.	0C131	ACRLFS	ENT	A*L(BUFFERPRNT)	70150	11010 71030	
.	0C132	DESIRED	D	BUFFERPRNT+3	70151	00000 71033	
.	0C133	ASWAS	D	BUFFERPRNT	70152	00000 71030	
.	0C134	COLUMNHEAD	FD	110*SYSTEM PROGRAM PROGRAMMER+ DATE FIRST LAST	70153	30363 03112	
					70154	22050 50525	
					70155	27241 42706	
					70156	22050 50505	
					70157	25272 41427	
					70160	06222 21227	
					70161	42110 63112	
					70162	05050 50505	
					70163	13162 73031	
					70164	05050 50505	
					70165	21063 03105	
	0C135		FD	0* RUN INIT.	70166	05050 50505	
					70167	05273 22305	
					70170	05050 50516	
					70171	23163 17505	
	0C136	SECNDHEAD	FD	110* NAME NAME LOCTN. LOCTN.	70172	05230 62212	
					70173	05050 50505	
					70174	23062 21205	
					70175	05050 50505	
					70176	05050 50505	
					70177	05050 50505	
					70200	05050 50505	
					70201	05050 50505	
					70202	21241 03123	
					70203	75050 50521	
					70204	24103 12375	
.	0C137		FD	0* ENTRY ENTRY	70205	05050 50505	
					70206	12233 12736	
					70207	05050 50512	
					70210	23312 73605	
.	0C140	CRLFRT	ENTRY		70211	61000 00000	CARRIAGE RETURN-LINE FEED-LINE FEED ROUTINE
.	0C141		RIL		70212	60000 00000	
.	0C142		OUT	TYPE*W(BCWCRLF)*MONITOR	70213	76130 70220	

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CARDS    L1 ID LABEL      TA STATEMENT                                  LOC     F JKB Y      NOTES

   .     CC143            PUT  W(JPCRLF)*W(62)                          7C214  1CC3C 7C221
                                                                         7C215  14C3C CCC62
   .     CC144            JP   $                                        7C216  61CCC 7C216
   .     CC145 CRLF       EXIT                                          7C217  61C1C 7C211
   .     CC146 BCWCRLF    U-TAG     CRLFCODE+2*CRLFCODE                 7C220  7C224 7C222
   .     CC147 JPCRLF     RILJP     CRLF                                7C221  60100 7C217
   .     CC150 CRLFCODE   C    4                                        7C222  CCCOC CCCC4
   .     CC151            C    3                                        7C223  CCCCC CCCC3
   .     CC152            C    3                                        7C224  CCCCC CCCC3
   .     CC153 INCOME     ENTRY                                         7C225  61CCC CCCCC  INPUT AND TYPE OCTAL OR FD WOR
                                                                                           DS
   .     CC154            PUT  L(INCOME)*L(NEXPLA)                      7C226  1CC1C 7C225  INPUT INSTR. STORED
                                                                         7C227  14C1C 7C23C
   .     CC155 NEXPLA     PUT  W(0)*W(LCOPREPLY)                        7C230  1CC3C CCCCC
                                                                         7C231  14C3C 7C243
   .     CC156            RPL  Y+1*L(INCOME)                            7C232  36C1C 7C225
   .     CC157            PUT  L(INCOME)*L(CEXPLA)                      7C233  1CC1C 7C225  NC-OP IF FC OR ACC A 6C IF OCT
                                                                                           AL
                                                                         7C234  14C1C 7C235
   .     CC160 DEXPLA     PUT  W(0)*W(CKIN+1)                           7C235  1CC3C CCCCC
                                                                         7C236  14C3C 7C25C
   .     CC161            RPL  Y+1*L(INCOME)                            7C237  36C1C 7C225
   .     CC162            CL   B2*                                      7C240  122CC CCCCC
   .     CC163            CL   W(NUMBER)                                7C241  16C3C 7C31C
   .     CC164            RJP  CRLFRT                                   7C242  65CCC 7C211  CARRIAGE RETURN-LF-LF
   .     CC165 LOOPREPLY  0    0                                        7C243  CCCCC CCCCC  INPUT INSTR (CLOCK OR TYPEWRIT
                                                                                           ER)
   .     CC166            PUT  W(JPCKIN)*W(42)                          7C244  1CC3C 7C3C5
                                                                         7C245  14C3C CCC42
   .     CC167            JP   $                                        7C246  61CCC 7C246
   .     CC170 CKIN       ENT  A*W(REPLY)                               7C247  11C3C 7C313  NUMBER INPUT (1 FC OR OCTAL CH
                                                                                           AR)
   .     CC171            NC-OP                                         7C250  12CCC CCCCC  NC-OP IF FC OR ACC A 60 IF OCT
                                                                                           AL
   .     CC172            STR  A*W(REPLY)                               7C251  15C3C 7C313  CHARACTER INPUT NOW IN FC
   .     CC173            SUB  A*4                                      7C252  21CCC CCCC4
   .     CC174            JP   ALDONE*AZERO                             7C253  6C4CC 7C275  CHECK IF CARRIAGE RETURN
   .     CC175            BSK  B2*5                                     7C254  712CC CCCC5
   .     CC176            JP   COIT                                     7C255  61CCC 7C257
   .     CC177            JP   CONTOO                                   7C256  61CCC 7C264
   .     CC200 OOIT       ENT  A*W(NUMBER)                              7C257  11C3C 7C31C  STORE FIRST 5 CHARS (NEED BASE
                                                                                            ADDRESS)
   .     CC201            LSH  A*3                                      7C260  C6CCC CCCC3
   .     CC202            ADD  A*W(REPLY)                               7C261  2CC3C 7C313
   .     CC203            SUB  A*6C                                     7C262  21CCC CCC6C
   .     CC204            STR  A*W(NUMBER)                              7C263  15C3C 7C31C  5 PLACE OCTAL NUMBER STORED.
   .     CC205 OONTOO     ENT  A*W(REPLY)                               7C264  11C3C 7C313
   .     CC206            SUB  A*W(ERASURE)                             7C265  21C3C 7C3C6
   .     CC207            JP   CCCRLF*AZERO                             7C266  6C4CC 7C276  CHECK FOR ERASURE
   .     CC210            OUT  TYPE*W(BCWREPLY)*MONITOR                 7C267  7613C 7C3C4  OUTPUT TO TYPEWRITER FC INFO

   .     CC211            PUT  W(JPGOBACK)*W(62)                        7C270  1CC3C 7C3C7
                                                                         7C271  14C3C CCC62
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CARDS	L1 ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	CC212			JP $	7C272	61CCC 7C272	
.	CC213	GOBACK		BSK 82*80D	7C273	712CC CC12C	INPUT UP TO 80 CHAR OR UNTIL CR FOUND
.	CC214			JP LOOPREPLY	7C274	61CCC 7C243	
.	CC215	ALLONE		EXIT	7C275	61C1C 7C225	RETURN
.	CC216	DOCRLF		OUT TYPE*W(BCWERAS)*MONITOR	7C276	76130 7C312	REPEAT INPUT AT WHEN ERASURE
.	CC217			PUT W(JPOVERJP)*W(62)	7C277	1CC3C 7C311	
					7C300	14C3C CCC62	
.	CC22C			JP $	7C301	61CCC 7C301	
.	CC221	NVERJP		RJP CRLFRT	7C302	65CCC 7C211	GO BACK TO BEGIN INPUT AGAIN
.	CC222			JP LOOPREPLY-3	7C303	61CCC 7C24C	
.	CC223	BCWREPLY		U-TAG REPLY*REPLY	7C304	7C313 7C313	
.	CC224	JPCKIN		RILJP CKIN	7C305	6C1CC 7C247	
.	CC225	ERASURE		C 77	7C306	CCCCC CCC77	FC CODE FOR ERASURE
.	CC226	JPCCBACK		RILJP GOBACK	7C307	6C1CC 7C273	
.	CC227	NUMBER		O C	7C310	CCCCC CCCCC	FIRST 5 DIGITS INPUT(OCTAL BASE ADR)
.	CC23C	JPOVERJP		RILJP NVERJP	7C311	6C1CC 7C3C2	
.	CC231	BCWERAS		U-TAG ERASURE*ERASURE	7C312	7C3C6 7C3C6	BCW FOR OUTPUT OF ERASURE
.	CC232	REPLY		C C	7C313	CCCCC CCCCC	INPUT STORED (OCTAL FROM CLOCK OR FC FROM TYPEWRITER)
.	CC233	MAINLOAD		ENTRY	7C314	61CCC CCCCC	
.	CC234			RJP READTAPE	7C315	65CCC 71230	
.	CC235			U-TAG HEADING+8C*HEADING	7C316	7C4C3 7C373	
.	CC236			CL W(EOPIND)	7C317	16C3C 72344	
.	CC237	ANAL		ENT A*U(HEADING)	7C320	11C2C 7C373	
.	CC24C			SUB A*74747	7C321	21CCC 74747	
.	CC241			JP BADHEAD*ANOT	7C322	6C5CC 7C336	CHECK U(FIRST WORD OF HEADING) FOR 74747
.	CC242			JP $+2*KEY2	7C323	612CC 7C325	
.	CC243			JP $+3	7C324	61CCC 7C327	
.	CC244			RJP WRITE	7C325	65CCC 715C2	
.	CC245			U-TAG HEADING+8C*HEADING	7C326	7C4C3 7C373	
.	CC246			ENT A*L(HEADING)	7C327	11C1C 7C373	
.	CC247			SUB A*CC321	7C330	21CCC CC321	
.	CC25C			JP MAYBE32C*ANOT	7C331	6C5CC 7C333	
.	CC251			JP CC321	7C332	61CCC 7C343	
.	CC252	MAYBE32C		ENT A*L(HEADING)	7C333	11C1C 7C373	
.	CC253			SUB A*CC32C	7C334	21CCC CC32C	
.	CC254			JP CC32C*AZERO	7C335	6C4CC 72213	CHECK IF 32C FORMAT, IF YES GO TO CC32C
.	CC255	BADHEAD		EX-FCT TAPE*211CCCC004	7C336	13670 72364	
.	CC256			RJP PRINT	7C337	65CCC 7C767	
.	CC257			3 FORMATERR	7C340	CCCC3 72334	
.	CC26C			RJP CRLFRT	7C341	65CCC 7C211	
.	CC261			JP END	7C342	61CCC 7CC7C	NO MORE ANALYSIS SINCE BAD FORMAT
.	CC262	CC321		ENT A*W(BASEADRS)	7C343	11C3C 7C4C4	ANALYZE 321 TAPE
.	CC263			ADD A*U(HEADING+7)	7C344	2CC2C 7C4C2	
.	CC264			SUB A*1	7C345	21CCC CCC01	
.	CC265			STR A*W(LASTADR)	7C346	15C3C 7C4C6	BASE ADDRESS + MEMORY LOC USED =LAST ADDRESS

CARDS	LI ID	LABEL	TA	STATEMENT	LOC	F	JKP	Y	NOTES
.	00266			CL W(CKSUM)	70347	16030	707C2		FIRST ADDRESS OF BLOCK LOADED
.	00267			RJP READTAPE	70350	65000	7123C		
.	00270			U-TAG RECORD+55D*RECORD	70351	70525	70436		READ 56 DEC WORD BLOCK FROM UNIT 2
.	00271			JP $+2*KEY2	70352	612CC	70354		
.	00272			JP $+3	70353	61CCC	70356		
.	00273			RJP WRITE	70354	65000	715C2		
.	00274			U-TAG RECORD+55D*RECORD	70355	70525	70436		
.	00275			RJP PUTABLE	70356	65000	7041C		
.	00276			JP $+2*KEY1	70357	611CC	70361		
.	00277			RJP DDLOG	70360	65000	70540		LOG DATA IN COLUMNS IF KEY 1 = C
.	00300			ENT B4*W(BASEADRS)	70361	12430	70404		B4 USED AS CURRENT LOCATION COUNTER
.	00301	STORPROG		RJP MODIFSTORE	70362	65000	70616		DO MODIFICATIONS AND LOAD CORE
.	00302			STR B4*W(BASEADRS)	70363	16430	70404		FIRST ADDRESS OF CURRENT BLOCK
.	00303			RJP READTAPE	70364	65000	7123C		
.	00304			U-TAG RECORD+55D*RECORD	70365	70525	70436		READ 56 DEC WORD BLOCK FROM UNIT 2
.	00305			JP $+2*KEY2	70366	612CC	70370		
.	00306			JP $+3	70367	61000	70372		
.	00307			RJP WRITE	70370	65000	715C2		
.	00310			U-TAG RECORD+55D*RECORD	70371	70525	70436		
.	00311			JP STORPROG	70372	61CCC	70362		CONTINUE PROCESS TIL END OF PROG MODIF FOUND(5)
.	00312	HEADING		RESERVE 90	70373	CCCCC	CCCCC		STORAGE FOR HEADING RECORD
.	00313	BASEADRS		C C	70404	CCCCC	CCCCC		FIRST ADDRESS OF BLOCK LOADED
.	00314	CHARS		C C	70405	CCCCC	CCCCC		
.	00315	LASTADR		C C	70406	CCCCC	CCCCC		LAST WORD ADDRESS OF PROGRAM LOADED INTO CORE
.	00316	BCWRAD		U-TAG CHARS*CHARS	70407	70405	70405		BCW TO WRITE BAD FORMAT
.	00317	PUTABLE		ENTRY	70410	61000	CCCCC		STORE IN ENTRANCE AND ANME TABLES
.	00320			ENT B2*W(TABCT)	70411	12230	70131		COUNT OF CURRENT PLACE IN TABLES
.	00321			ENT A*U(INSTR)	70412	11020	70443		MODIFY BOTH UPPER AND LOWER PART OF ENT
.	00322			ADD A*W(STOREBASE)	70413	20030	70127		
.	00323			STR A*U(SYSENTRIES+B2)	70414	15022	776CC		
.	00324			ENT A*L(INSTR)	70415	11010	70443		
.	00325			ADD A*W(STOREBASE)	70416	20030	70127		
.	00326			STR A*L(SYSENTRIES+B2)	70417	15012	776CC		
.	00327			PUT W(SYSENTRIES+B2)*W(MODIFENT)	70420	10032	776CC		
					70421	14030	70435		
.	00330			ENT A*W(INSTR+1)	70422	11030	70444		
.	00331			STR A*W(SYSNAMES+B2)	70423	15032	777CC		
.	00332			STR A*W(BLOCK)	70424	15030	70577		STORE IN COLUMN OUTPUT AREA
.	00333			SUB A*W(MCPID)	70425	21030	70126		
.	00334			JP NOTMCP*ANDI	70426	60500	70431		
.	00335			PUT W(SYSENTRIES+B2)*W(MCPGM)	70427	10032	776CC		

CARDS	LI ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
					7C430	14C30 63412	
.	CC336	NOIMCP		ENT A*B2	7C431	11CC2 CCCCC	
.	CC337			ADD A*1	7C432	2CCCC CCCC1	
.	CC340			STR A*W(TABCT)	7C433	15C3C 7C131	UPDATE TABLE COUNTER
.	CC341			EXIT	7C434	61C1C 7C41C	
.	CC342	MODIFENT		O C	7C435	CCCCC CCCCC	TEMP STORAGE FOR MODIFIED RUN AND INIT. ENTRY
.	CC343	RECORD		RESERVE 5	7C436	CCCCC CCCCC	MODIFIERS
.	CC344	INSTR		RESERVE 51D	7C443	CCCCC CCCCC	INSTRUCTIONS TO BE LOADED INTO CORE
.	CC345	DOMODIF		ENTRY	7C526	61CCC CCCCC	
.	CC346			ENT B6*A	7C527	1267C CCCCC	
.	CC347			RJP L(MODIFTABLE+B6)*ANCT	7C530	64516 7C532	GO TO MODIFY INSTR
.	CC350			EXIT	7C531	61C1C 7C526	
.	CC351	MODIFTABLE		O C	7C532	CCCCC CCCCC	MODIFIER=0
.	CC352			O ADDLOWER	7C533	CCCCC 7C705	=1
.	CC353			O ADDUPPER	7C534	CCCCC 7C712	=2
.	CC354			O ADDBOTH	7C535	CCCCC 7C717	=3
.	CC355			O EXECINSTR	7C536	CCCCC 7C723	=4
.	CC356			O ENDPROG	7C537	CCCCC 7C731	=5
.	CC357	DOLOG		ENTRY	7C540	61CCC CCCCC	
.	CC360			ENT A*0505050505	7C541	11C3C 72365	
.	CC361			RPT 14D*ADV	7C542	7C1CC CCC16	
.	CC362			STR A*W(BLOCK+1)	7C543	15C3C 7C6CC	
.	CC363			MOVC 6*HEADING+1*BLOCK+2	7C544	127CC CCCC5	
					7C545	1LC37 7C374	
					7C546	14C37 7C6C1	
					7C547	727CC 7C545	
.	CC364			ENT A*L(STOREBASE)	7C550	11C1C 7C127	
.	CC365			RSH AQ*15D	7C551	03CCC CCC17	
.	CC366			RJP KOCTTOFD	7C552	65CCC 71436	
.	CC367			STR A*W(BLOCK+8D)	7C553	15C3C 7C6D7	
.	CC370			ENT A*L(LASTADR)	7C554	11C1C 7C4D6	
.	CC371			RSH AQ*15D	7C555	03CCC CCC17	
.	CC372			RJP KOCTTOFD	7C556	65CCC 71436	
.	CC373			STR A*W(BLOCK+10D)	7C557	15C3C 7C611	
.	CC374			ENT A*U(MODIFENT)	7C560	11C2C 7C435	
.	CC375			RSH AQ*15D	7C561	03CCC CCC17	
.	CC376			RJP KOCTTOFD	7C562	65CCC 71436	
.	CC377			STR A*W(BLOCK+12D)	7C563	15C3C 7C613	
.	CC4CC			ENT A*L(MODIFENT)	7C564	11C1C 7C435	
.	CC401			RSH AQ*15D	7C565	03CCC CCC17	
.	CC402			RJP KOCTTOFD	7C566	65CCC 71436	
.	CC403			STR A*Q	7C567	15CCC CCCCC	
.	CC404			ENT A*0505050505	7C570	11C3C 72365	
.	CC405			LSH AQ*12D	7C571	C7CCC CCC14	
.	CC406			STR A*W(BLOCK+13D)	7C572	15C3C 7C614	
.	CC407			STR C*W(BLOCK+14D)	7C573	14C3C 7C615	
.	CC41C			RJP PRINT	7C574	65CCC 7C767	
.	CC411			15D BLOCK	7C575	CCC17 7C577	
.	CC412			EXIT	7C576	61C1C 7C54C	
.	CC413	BLOCK		RESERVE 15D	7C577	CCCCC CCCCC	
.	CC414	MODIFSTORE		ENTRY	7C616	61CCC CCCCC	MODIFY AND STORE INSTRUCTIONS

CARDS	L1 ID LABEL	TA STATEMENT	LOC	F JKB Y	NOTES
.	CC415	CL W(CKSUM)	7C617	16C30 7C7C2	
.	CC416	CL B2*	7C62C	122CC CCCCC	
.	CC417 ATTHIS	ENT A*W(CKSUM)	7C621	11C3C 7C7C2	
.	CC42C	ADD A*W(RECORD+B2)	7C622	2CC32 7C436	
.	CC421	STR A*W(CKSUM)	7C623	15C3C 7C7C2	
.	CC422	BSK B2*4	7C624	712CC CCCC4	
.	CC423	JP ATTHIS	7C625	61CCC 7C621	
.	CC424	CL B5*	7C626	125CC CCCCC	WORK ON 5C INSTRS
.	CC425	CL B2*	7C627	122CC CCCCC	WORK WITH 5 MODIFICATION REGISTERS
.	CC426 RETNUP	ENT C*W(RECORD+B2)	7C63C	1CC32 7C436	
.	CC427	CL B3*	7C631	123CC CCCCC	1C MODIFIERS PER MODIFICATION REC.
.	CC43C	ENT A*W(CKSUM)	7C632	11C3C 7C7C2	COMPUTE CURRENT CHECKSUM
.	CC431	ADD A*W(INSTR+B5)	7C633	2CC35 7C443	
.	CC432	STR A*W(CKSUM)	7C634	15C3C 7C7C2	
.	CC433	CL A*	7C635	11CCC CCCCC	
.	CC434	LSH AQ*3	7C636	C7CCC CCCC3	
.	CC435	RJP COMODIF	7C637	65CCC 7C526	MODIFY INSTR IF REQUESTED
.	CC436	ENT A*W(INSTR+B5)	7C64C	11C35 7C443	
.	CC437	STR A*W(B4)	7C641	15C34 CCCCC	
.	CC44C	ENT A*B4	7C642	11CC4 CCCCC	UPDATE CURRENT LOC COUNTER FOR LOADING
.	CC441	ADD A*1	7C643	2CCCC CCCC1	
.	CC442	ENT B4*A	7C644	1247C CCCCC	
.	CC443	ENT A*B5	7C645	11CC5 CCCCC	
.	CC444	ADD A*1	7C646	2CCCC CCCC1	
.	CC445	ENT B5*A	7C647	1257C CCCCC	
.	CC446	BSK B3*9D	7C65C	713CC CCC11	
.	CC447	JP RETNUP+2	7C651	61CCC 7C632	
.	CC45C	BSK B2*4D	7C652	712CC CCCC4	
.	CC451	JP RETNUP	7C653	61CCC 7C63C	
.	CC452	RJP COMPCKSM	7C654	65CCC 7C656	COMPARE CKSUMS
.	CC453	EXIT	7C655	61C1C 7C616	
.	CC454 COMPCKSM	ENTRY	7C656	61CCC CCCCC	COMPARE CHECKSUM COMPUTED WITH THAT OF BLOCK
.	CC455	ENT A*W(CKSUM)	7C657	11C3C 7C7C2	
.	CC456	SUB A*W(INSTR+5CC)	7C66C	21C3C 7C525	
.	CC457	JP CDAGAIN*ANOT	7C661	6C5CC 7C664	IF UNALIKE, BACKSPACE BLOCK AND REAC AGAIN
.	CC46C NKCLEAR	CL W(NNLYTWO)	7C662	16C3C 7C677	
.	CC461	EXIT	7C663	61C1C 7C656	
.	CC462 CDAGAIN	ENT A*W(NNLYTWO)*AZERO	7C664	1143C 7C677	
.	CC463	JP NKCLEAR	7C665	61CCC 7C662	
.	CC464	PUT W(JPTOIT)*W(35)	7C666	1CC3C 7C7C3	
			7C667	14C3C CCC35	
.	CC465	EX-FCT TAPE*W(FCTBACKUP)	7C67C	1367C 7C7C4	BACKSPACE A BLOCK ON UNIT 2
.	CC466	JP $	7C671	61CCC 7C671	
.	CC467 TOIT	STR TAPE*W(STATUS)	7C672	1767C 71455	
.	CC47C	PUT W(NNE)*W(NNLYTWO)	7C673	1CC3C 7C7CC	INDICATE BACKSPACE
			7C674	14C3C 7C677	
.	CC471	ENT B4*W(BASEADRS)	7C675	1243C 7C4C4	FIRST ACCRESS OF BLOCK TO BE R

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CARDS   LI ID LABEL      TA STATEMENT                                LOC     F JKB Y      NOTES

                                                                                        ELOADEC
    .   CC472            JP   STOPPROG+1                            7C676   61CCC 7C363
    .   CC473 NXLYTWO    C    C                                     7C677   CCCCC CCCCC  BAD CHECKSUM COUNTER (ALLOW 1)

    .   CC474 ONE        C    1                                     7C700   CCCCC CCCC1
    .   CC475 ZERO       C    C                                     7C701   CCCCC CCCCC
    .   CC476 CKSUM      C    C                                     7C702   CCCCC CCCCC
    .   CC477 JPTOIT     RTLJP     TOIT                             7C703   6C1CC 7C672
    .   CC5CC RCTBACKUP  3C3UO     00004                            7C704   3C3CC CCCC4  BACKSPACE A BLOCK ON UNIT 2
    .   CC5C1 ADDLOWER    ENTRY                                     7C705   61CCC CCCCC
    .   CC502            ENT  A*L(INSTR+R5)                        7C706   11C15 7C443
    .   CC503            ADD  A*W(STOREBASE)                       7C707   2CC3C 7C127
    .   CC504            STR  A*L(INSTR+R5)                        7C710   15C15 7C443
    .   CC505            EXIT                                      7C711   61C1C 7C7C5
    .   CC506 ADDUPPER   ENTRY                                     7C712   61CCC CCCCC
    .   CC507            ENT  A*U(INSTR+R5)                        7C713   11C25 7C443
    .   CC51C            ADD  A*W(STOREBASE)                       7C714   2CC3C 7C127
    .   CC511            STR  A*U(INSTR+R5)                        7C715   15C25 7C443
    .   CC512            EXIT                                      7C716   61C1C 7C712
    .   CC513 ADDBOTH    ENTRY                                     7C717   61CCC CCCCC
    .   CC514            RJP  ADDUPPER                             7C720   65CCC 7C712
    .   CC515            RJP  ADDLOWER                             7C721   65CCC 7C7C5
    .   CC516            EXIT                                      7C722   61C1C 7C717
    .   CC517 EXECINSTR  ENTRY                                     7C723   61CCC CCCCC
    .   CC52C            ENT  A*W(INSTR+R5)                        7C724   11C35 7C443
    .   CC521            STR  A*W(NEXTCO)                          7C725   15C3C 7C726
    .   CC522 NEXTCO     C    C                                    7C726   CCCCC CCCCC
    .   CC523            ENT  B4*B4-1                              7C727   124C4 77776
    .   CC524            EXIT                                      7C730   61C1C 7C723
    .   CC525 ENDPROG    ENTRY                                     7C731   61CCC CCCCC
    .   CC526            RJP  COMPCKSM                             7C732   65CCC 7C656
    .   CC527 UPDATBASE  ENT  A*H4                                 7C733   11CC4 CCCCC
    .   CC53C            ADD  A*14                                 7C734   2CCCC CCC14
    .   CC531            SEL  CL*7                                 7C735   52CCC CCCC7
    .   CC532            STR  A*W(BASEADRS)                        7C736   15C3C 7C4C4
    .   CC533            STR  A*W(STOREBASE)                       7C737   15C3C 7C127
    .   CC534            STR  BO*CPW(EOPINC)                       7C740   16C7C 72344
    .   CC535            RJP  READ2WDS                             7C741   65CCC 72261
    .   CC536 DONE32C    STR  BO*CPW(EOPINC)                       7C742   16C7C 72344
    .   CC537            ENT  A*W(PMODE)                           7C743   11C3C 7165C
    .   CC54C            JP   L(MAINLOAD)*ANOT                     7C744   6C51C 7C314
    .   CC541            RJP  MAINLOAD                             7C745   65CCC 7C314
    .   CC542 STOPEXRS   ENTRY                                     7C746   61CCC CCCCC  STORE INDEX REGISTERS B2-B6
    .   CC543            STR  B2*U(UB2LB3)                         7C747   1622C 7C764
    .   CC544            STR  B3*L(UB2LB3)                         7C750   1631C 7C764
    .   CC545            STR  B4*U(UB4LB5)                         7C751   1642C 7C765
    .   CC546            STR  B5*L(UB4LB5)                         7C752   1651C 7C765
    .   CC547            STR  B6*U(UB6)                            7C753   1662C 7C766
    .   CC55C            RTLJP     L(STOPEXRS)                     7C754   6C11C 7C746
    .   CC551 ENTERXRS   ENTRY                                     7C755   61CCC CCCCC  RESTORE INDEX REGISTERS B2-B6

    .   CC552            ENT  B2*U(UB2LB3)                         7C756   1222C 7C764
    .   CC553            ENT  B3*L(UB2LB3)                         7C757   1231C 7C764
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CARDS    LI (D LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES
   .     CC554              ENT  B4*U(UB4LB5)                       7C760  1242C 7C765
   .     CC555              ENT  B5*L(UB4LB5)                       7C761  1251C 7C765
   .     CC556              ENT  B6*U(UB6)                          7C762  1262C 7C766
   .     CC557              EXIT                                    7C763  61C1C 7C755
   .     CC560 UB2LB3       C    C                                  7C764  CCCCC CCCCC
   .     CC561 UB4LB5       C    C                                  7C765  CCCCC CCCCC
   .     CC562 UB6          C    C                                  7C766  CCCCC CCCCC
   .     CC563 PRINT        ENTRY                                   7C767  61CCC CCCCC  PRINT ON CONSOLE TYPEWRITER
   .     CC564              RJP  STOREXRS                           7C770  65CCC 7C746
   .     CC565              PUT  W(JPPRINTOVR)*W(E2)                7C771  1CC3C 71C26
                                                                    7C772  14C3C CCC62
   .     CC566              PUT  L(PRINT)*L(SETUP)                  7C773  1CC1C 7C767
                                                                    7C774  14C1C 7C775
   .     CC567 SETUP        PUT  W(0)*W(UNPACKCODE)                 7C775  1CC3C CCCCC
                                                                    7C776  14C3C 71CC2
   .     CC570              RPL  Y+1*L(PRINT)                       7C777  36C1C 7C767  INDEX RETURN POINT
   .     CC571              ENT  A*BUFFERPRNT+3                     71000  11CCC 71C33
   .     CC572              RJP  UNPACK                             71001  65CCC 71177  UNPACK FIELDATA TEXT
   .     CC573 UNPACKCODE   D    C                                  71002  CCCCC CCCCC
   .     CC574              ENT  Q*U(UNPACKCODE)                    71003  1CC2C 71CC2  COUNT OF WORDS
   .     CC575              MUL  5                                  71004  22CCC CCCC5  COUNT OF CHARACTERS
   .     CC576              ADD  Q*BUFFERPRNT+3                     71005  26CCC 71C33
   .     CC577              STR  Q*L(STORECR)                       71006  14C1C 71C12
   .     CC6CC              ADC  Q*1                                71007  26CCC CCCC1
   .     CC6C1              STR  Q*L(STORELF)                       71010  14C1C 71C13
   .     CC602              CL   A*                                 71011  11CCC CCCCC
   .     CC6C3 STORECR      STR  A*L(C)                             71012  15C1C CCCCC
   .     CC6C4 STORELF      STR  A*L(D)                             71013  15C1C CCCCC
   .     CC6C5              STR  Q*A                                71014  14C4C CCCCC  LWA OF UNPACKED TEXT
   .     CC6C6              LSH  A*15D                              71015  C6CCC CCC17
   .     CC6C7 CHCADR       SEL  SET*BUFFERPRNT                     71016  5CCCC 71C3C
   .     CC61C              STR  A*W(PRINTBUFFC)                    71017  15C3C 71C27
   .     CC611              CUT  TYPE*W(PRINTBUFFC)*MONITOR         71020  7613C 71C27
   .     CC612 WAITPRINT    JP   WAITPRINT                          71021  61CCC 71C21
   .     CC613 PRINTOVER    RJP  ENTERXRS                           71022  65CCC 7C755
   .     CC614              RPT  1CCCD                              71023  7CCCC C175C
   .     CC615              DIV  1                                  71024  23CCC CCCC1
   .     CC616              EXIT                                    71025  61C1C 7C767
   .     CC617 JPPRINTOVR   RILJP      PRINTOVER                    71026  60100 71C22
   .     CC62C PRINTBUFFC   D    C                                  71027  CCCCC CCCCC  BUFFER CONTROL FOR PRINTING

   .     CC621 BUFFERPRNT   C    C3                                 71030  CCCCC CCCC3  LINE FEED
   .     CC622              D    C                                  71031  CCCCC CCCCC
   .     CC623              D    C4                                 71032  CCCCC CCCC4  CARRIAGE RETURN
   .     CC624              RESERVE   100D                          71033  CCCCC CCCCC
   .     CC625 UNPACK       ENTRY                                   71177  61CCC CCCCC  UNPACK 1 CHARACTER TO WORD
   .     CC626              STR  A*L(STOREUNPAK)                    71200  15C1C 71221  FWA OF UNPACKED TABLE
   .     CC627              PUT  L(UNPACK)*L(PUTCOUNTER)            71201  1CC1C 71177
                                                                    71202  14C1C 71202
   .     CC63C PUTCOUNTER   PUT  W(0)*W(COUNTER)                    71203  1CC3C CCCCC
                                                                    71204  14C3C 71227
   .     CC631              RPL  Y+1*L(UNPACK)                      71205  36C1C 71177  INDEX RETURN POINT
   .     CC632              CL   B3*                                71206  123CC CCCCC  CLEAR WORD COUNTER
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CARDS    L1 ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     CC633            PUT  L(COUNTER)*L(GETPACK)                  71207  10C10 71227  FWA OF PACKED TABLE
                                                                       71210  14C1C 71216
   .     CC634            ENT  A*U(COUNTER)                           71211  11C2C 71227  WORD COUNT
   .     CC635            SUB  A*1                                    71212  21CCC CCCC1  WORD COUNT - 1
   .     CC636            STR  A*L(LOOPLIMIT)                         71213  15C1C 71224
   .     CC637            CL   B4*                                    71214  124CC CCCCC  CLEAR CHARACTER COUNTER
   .     CC64C LOOPSTART  ENT  B5*4                                   71215  125CC CCCC4  SET TO LOOP 5 TIMES
   .     CC641 GETPACK    ENT  C*W(33)                                71216  10C33 CCCCC  PACKED WORD
   .     CC642 LOOP1      CL   A*                                     71217  11CCC CCCCC  CLEAR ACCUMULATOR
   .     CC643            LSH  AQ*6                                   71220  07CCC CCCC6  NEXT CHARACTER OF PACKED WORD

   .     CC644 STOREUNPAK STR  A*L(B4)                                71221  15C14 CCCCC  STORE IN UNPACK TABLE
   .     CC645            BSK  B4*77777                               71222  714CC 77777  INDEX UNPACK TABLE
   .     CC646            BJP  B5*LOOP1                               71223  725CC 71217  FINISHED THIS WORD...
   .     CC647 LOOPLIMIT  BSK  B3*0                                   71224  713CC CCCCC  YES. FINISHED ALL WORDS...
   .     CC650            JP   LOOPSTART                              71225  61CCC 71215  NO.
   .     CC651            EXIT                                        71226  61C1C 71177  YES.
   .     CC652 COUNTER    C    C                                      71227  CCCCC CCCCC  0
   .     CC653 READTAPE   ENTRY                                       71230  61CCC CCCCC  READ SPURT 21C TAPE
   .     CC654            RJP  STOREXRS                               71231  65CCC 7C746
   .     CC655            PUT  L(READTAPE)*L(INPUFFER)                71232  10C1C 7123C
                                                                       71233  14C1C 71236
   .     CC656            RPL  Y+1*L(READTAPE)                        71234  36C1C 7123C  INDEX RETURN POINT
   .     CC657            CL   B2*                                    71235  122CC CCCCC
   .     CC66C INPUFFER   IN   TAPE*W(0)                              71236  7367C CCCCC  ESTABLISH INPUT BUFFER
   .     CC661            PUT  W(JPC15EXT)*W(35)                      71237  10C3C 71336
                                                                       71240  14C3C CCC35
   .     CC662            EX-FCT    TAPE*52CCCCC004                   71241  1367C 72366  BINARY-HC TAPE ON UNIT 2
   .     CC663 WAIT1      JP   WAIT1                                  71242  61CCC 71242  WAIT FOR INTERRUPT
   .     CC664 C15EXTINT  STR  TAPE*W(STATUS)                         71243  1767C 71455  STATUS WORD
   .     CC665            ENT  A*U(STATUS)                            71244  11C2C 71455
   .     CC666            RSH  A*11C                                  71245  C2CCC CCC13
   .     CC667            ADD  A*STATUSCODE                           71246  2CCCC 71275
   .     CC67C            STR  A*L(INTERJUMP)                         71247  15C1C 71251
   .     CC671            RIL                                         71250  6CCCC CCCCC
   .     CC672 INTERJUMP  JP   L(C)                                   71251  61C1C CCCCC  GO TO APPROPRIATE STATUS ROUTI
                                                                                          NE
   .     CC673 BACK       RJP  ENTERXRS                               71252  65CCC 7C755
   .     CC674            EXIT                                        71253  61C1C 7123C
   .     CC675 INTERLOCK  PUT  W(UNITNOINT)*W(LOCKP)                  71254  10C3C 71274  INTERLOCK ROUTINE
                                                                       71255  14C3C 71267
   .     CC676            RJP  PRINT                                  71256  65CCC 7C767  PRINT INTERLOCK MESSAGE
   .     CC677            IID  INTERLOCKP                             71257  CCC13 71261
   .     CC7CC            JP   INBUFFER*STOP                          71260  614CC 71236
   .     CC701 INTERLOCKP FC   6*THERE IS AN INTERLOCK ON UNIT        71261  31151 22712
                                                                       71262  05163 CC506
                                                                       71263  23C51 62331
                                                                       71264  12272 1241C
                                                                       71265  2CC52 42305
                                                                       71266  32231 631C5
   .     CC702 LOCKP      FC   5*C.  CORRECT AND START.               71267  1075C 5C51C
                                                                       71270  24272 7121C
                                                                       71271  31C5C 62311
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CARDS    LI ID LABEL      TA STATEMENT                                    LOC    F JKB Y      NOTES

                                                                         71272  C5303 10627
                                                                         71273  31750 5C5C5
    .    CC703 UNITNOINT     FC   1*C.                                   71274  1075C 5C5C5
    .    CC704 STATUSCODE    CC   MACHERR                                71275  CCCCC 71422  NOT USED
    .    CC705               C4   MACHERR                                71276  CCC04 71422  NOT USED
    .    CC706               1C   MACHERR                                71277  CCC1C 71422  NOT USED
    .    CC707               14   MACHERR                                71300  CCC14 71422  NOT USED
    .    CC71C               2C   MACHERR                                71301  CCC2C 71422  CHARACTER SYNC SEQUENCE ERROR
    .    CC711               24   INBUFFER                               71302  CCC24 71236  REWINDING
    .    CC712               3C   MACHERR                                71303  CCC3C 71422  CHAR SYNC CHAR COUNT ERROR
    .    CC713               34   MACHERR                                71304  CCC34 71422  FUNCTION WORD ERROR
    .    CC714               4C   BACK                                   71305  CCC4C 71252  NORMAL COMPLETION
    .    CC715               44   PARITY                                 71306  CCC44 71337  PARITY ERROR
    .    CC716               5C   MACHERR                                71307  CCC5C 71422  CONTROL UNIT SEQUENCE ERROR
    .    CC717               54   WRITEEOF                               71310  CCC54 71415  END OF FILE
    .    CC72C               6C   INPUTAPEND                             71311  CCC6C 71456  END OF TAPE
    .    CC721               64   MACHERR                                71312  CCC64 71422  NOT USED
    .    CC722               7C   MACHERR                                71313  CCC7C 71422  ABNORMAL FRAME COUNT
    .    CC723               74   INTERLOCK                              71314  CCC74 71254  INTERLOCK FAULT
    .    CC724 MACHFAULT     FC   10D*A MACHINE FAULT HAS OCCURRED ON     71315  C6C52 2C61C
                                   MAGNETIC TAPE UNIT
                                                                         71316  15162 312C5
                                                                         71317  13C63 22131
                                                                         71320  C515C 63CC5
                                                                         71321  24101 C3227
                                                                         71322  27121 1C524
                                                                         71323  23C52 2C614
                                                                         71324  23123 1161C
                                                                         71325  C531C 62512
                                                                         71326  C5322 31631
    .    CC725 UNITNC        FC   5*C .  THE STATUS CODE IS              71327  1CC57 5C5C5
                                                                         71330  31151 2C53C
                                                                         71331  31C63 1323C
                                                                         71332  C51C2 41112
                                                                         71333  C5163 CC5C5
    .    CC726 FDSTATCODE    FC   2*                                     71334  C5C5C 5C5C5
                                                                         71335  C5C5C 5C5C5
    .    CC727 JPC15EXT      RILJP     C15EXTINT                         71336  6C1CC 71243
    .    CC73C PARITY        BSK  B2*9D                                  71337  712CC CCC11  PARITY ROUTINE HAVE WE READ IC
                                                                                           .....
    .    CC731               JP   TRYAGAIN                               71340  61CCC 7135C  NO.  READ RECORD AGAIN
    .    CC732               PUT  U(UNITNOINT)*U(PMSG)                   71341  1CC2C 71274
                                                                         71342  14C2C 7136E
    .    CC733               RJP  PRINT                                  71343  65CCC 7C767  PRINT PARITY MESSAGE
    .    CC734               11D  PARITYMSG                              71344  CCC13 71354
    .    CC735               BSK  B6*50D                                 71345  716CC CCC62
    .    CC736               BSK  B6*51D                                 71346  716CC CCC63
    .    CC737               EXIT                                        71347  61C1C 7123C  NORMAL EXIT
    .    CC74C TRYAGAIN      EX-FCT    TAPE*2030CCC004                   71350  1367C 72367  BACKSPACE REC WITHOUT INTERRUP
                                                                                           T
    .    CC741               RPT  77777                                  71351  7CCCC 77777
    .    CC742               NC-OP                                       71352  12CCC CCCCC
    .    CC743               JP   INBUFFER                               71353  61CCC 71236  READ RECORD AGAIN
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CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	CC744		PARITYMSG		FC 1CC*A PARITY OCCURREC 10 TIMES ON MAGNETIC TAPE UNIT	71354	C6C52	5C627		
						71355	16313	6C524		
						71356	1C1C3	22727		
						71357	1211C	56124		
						71360	C5311	62212		
						71361	3CC52	423C5		
						71362	22C61	42312		
						71363	31161	CC531		
						71364	C6251	2C532		
						71365	23163	1C5C5		
.	CC745		PMSG		FC 1*C.	71366	1C75C	5C5C5		
.	CC746		TAPEPARMSG		RESERVE 11D	71367	CCCCC	CCCCC		BCC PARITY MESSAGE
.	CC747		FDTAPEPAR		FC 1CC*A PARITY OCCURREC ON INPUT TAPE IN FOLLOWING LI	71402	C6C52	5C627		
						71403	16313	6C524		
						71404	1C1C3	22727		
						71405	1211C	52423		
						71406	C5162	32532		
						71407	31C53	1C623		
						71410	I2C51	623C5		
						71411	13242	12124		
						71412	34162	31405		
						71413	2116C	5C5C5		
.	CC75C				FC 1*NE.	71414	23127	5C5C5		
.	CC751		WRITEECF		EX-ECT TAPE*211000C004	71415	1367C	72364		REWIND INPUT TAPE W/INTERLOCK
.	CC752				RPT 77777	71416	7CCCC	77777		
.	CC753				NC-UP	71417	12CCC	CCCCC		
.	CC754				JP ATENDOFILE	71420	61CCC	7CC66		
.	CC755		UNIT21C		FC 1* C.	71421	C5107	5C5C5		
.	CC756		MACHERR		PUT U(UNIT21C)*U(UNITNO)	71422	1CC2C	71421		
						71423	14C2C	71327		
.	CC757		MACHERRCR		ENT A*W(EOPIND)	71424	11C3C	72344		
.	CC76C				JP BADHEAD*ANEG	71425	6C7CC	7C336		
.	CC761				ENT C*W(STATUS)	71426	1CC3C	71455		
.	CC762				RJP KOCTTOFD	71427	65CCC	71436		
.	CC763				STR A*W(FDSTATCODE)	71430	15C3C	71334		
.	CC764				RJP KOCTTOFD	71431	65CCC	71436		
.	CC765				STR A*W(FDSTATCODE+1)	71432	15C3C	71335		
.	CC766				RJP PRINT	71433	65CCC	7C767		PRINT MACHINE ERROR MESSAGE
.	CC767				17D MACHFAULT	71434	CCC21	71315		
.	CC77C				JP LOGINFO*STOP	71435	61400	7CC12		
.	CC771		KOCTTOFD		ENTRY	71436	61CCC	CCCCC		
.	CC772				CL A*	71437	11CCC	CCCCC		
.	CC773				LSH AQ*3	71440	C7CCC	CCCC3		
.	CC774				LSH A*3	71441	C6CCC	CCCC3		
.	CC775				LSH AQ*3	71442	C7CCC	CCCC3		
.	CC776				LSH A*3	71443	C6CCC	CCCC3		
.	CC777				LSH AQ*3	71444	C7CCC	CCCC3		
.	C100C				LSH A*3	71445	C6CCC	CCCC3		
.	C1001				LSH AQ*3	71446	C7CCC	CCCC3		
.	C1002				LSH A*3	71447	C6CCC	CCCC3		

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CARDS    L1 ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

   .     C1003            LSH  AC*3                                     71450  07CCC CCCC3
   .     C1004            NO-OP                                         71451  12CCC CCCCC
   .     C1005 DUMMY      ACO  A*W(EXCESS60)                            71452  2CC3C 71454
   .     C1006            EXIT                                          71453  61C1C 71436
   .     C1007 EXCESS60   6C606     06060                               71454  6C6C6 C6C6C
   .     C101C STATUS     0    0                                        71455  CCCCC CCCCC
   .     C1011 INPUTAPEND PUT  W(ENDTAPEU)*W(ENDTAPEM)                  71456  1CC3C 715C1
                                                                        71457  14C30 71473
   .     C1012            RJP  PRINT                                    7146C  65CCC 7C767  PRINT END-OF-TAPE MESSAGE
   .     C1013            130  ENDOFTAPM                               71461  CCC15 71464
   .     C1014            JP   ATENDOFILE                               71462  61CCC 7CC66
   .     C1015            EXIT STOP                                     71463  6141C 71436
   .     C1016 ENDOFTAPM  FC   7*AN END OF TAPE HAS OCCURRED ON UN      71464  C623C 51223
                          IT
                                                                        71465  11C52 413C5
                                                                        71466  31C62 512C5
                                                                        71467  15C63 CC524
                                                                        71470  10103 22727
                                                                        71471  1211C 52423
                                                                        71472  C5322 31631
   .     C1017 ENDTAPEM   FC   6*  . HANG NEW TAPE AND START.           71473  C5C57 5C515
                                                                        71474  C6231 4C523
                                                                        71475  12340 531C6
                                                                        71476  2512C 5C623
                                                                        71477  11C53 C31C6
                                                                        715CC  27317 5C5C5
   .     C102C ENDTAPEU   FC   1* C.                                    71501  C5107 5C5C5
   .     C1021 WRITE      ENTRY                                         71502  61CCC CCCCC  WRITE + WAIT FOR 1 RECORD
   .     C1022            PUT  W(ENTRANCE)*W(35)                        71503  1CC3C 7161C
                                                                        71504  14C3C CCC35
   .     C1023            PUT  L(WRITE)*L(WRITECUT)                     71505  1CC1C 715C2  PICK UP BUFFER CONTROL WORD
                                                                        71506  14C1C 71512
   .     C1024            RPL  Y+1*L(WRITE)                             71507  36C1C 715C2  SET FOR NORMAL RJP +2
   .     C1025 FOREWIND   EX-FCT    C15*120C0C0C10                      71510  13670 72370
   .     C1026            RIL                                           71511  6CCCC CCCCC
   .     C1027 WRITEOUT   OUT  C15*W(0)                                 71512  7467C CCCCC
   .     C103C HERE       JP   HERE                                     71513  61C0C 71513  WAIT FOR INTERRUPT
   .     C1031 INTERRUPT  STR  C15*W(CHANNEL)                           71514  1767C 71544
   .     C1032            ENT  A*U(CHANNEL)                             71515  11C2C 71544  PICK UP STATUS WORD
   .     C1033            RSH  A*11D                                    71516  C2CCC CCC13
   .     C1034            ACC  A*STATCODE                               71517  2CCCC 71545  LOCATION OF TABLE OF JUMPS
   .     C1035            STR  A*L(INTJUMP)                             71520  15C1C 71521
   .     C1036 INTJUMP    JP   L(C)                                     71521  61C1C CCCCC  JUMP CONTROLLING S.R.
   .     C1037 BADMCH     PUT  U(MYSERVO)*U(UNITNO)                     71522  1CC2C 71565  MACHINE ERROR OR NOT USED
                                                                        71523  14C2C 71327
   .     C104C            JP   MACHERROR                                71524  61CCC 71424  ART S ROUTINE
   .     C1041 REDUNDANT  EX-FCT    C15*203C0CCC10                      71525  13670 72371  PARITY ON OUTPUT TAPE,BACKSPAC
                                                                                          E
   .     C1042            RPT  77777                                    71526  7CCCC 77777
   .     C1043            NO-OP                                         71527  12CCC CCCCC
   .     C1044            EX-FCT    C15*003C0CCC10                      71530  13670 72372  ERASE FORWARD
   .     C1045            JP   WRITEOUT                                 71531  61CCC 71512
   .     C1046 ENDTAPE    EX-FCT    C15*023C0CCC10                      71532  13670 72363  WRITE E O F HD
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CARDS	LI ID	LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	01047			RPT 77777	71533	7CCCC 77777	
.	01050			NC-OP	71534	12CCC CCCCC	
.	01051			EX-FCT C15*211C00CC10	71535	13670 72373	REW W/ INTLCK
.	01052			RJP PRINT	71536	65CC0 7C767	
.	01053			8C NEWTAPE	71537	CCC1C 71566	
.	01054			EXIT STOP	71540	6141C 715C2	
.	01055	INTERLCK		RJP PRINT	71541	65CC0 7C767	
.	01056			1CD WAKEUP	71542	CCC12 71576	
.	01057			JP WRITEOUT*STOP	71543	61400 71512	
.	01060	CHANNEL		C C	71544	CCCCC CCCCC	
.	01061	STATCODE		0C BADMCH	71545	CCCCC 71522	0 NOT USED
.	01062			04 BADMCH	71546	CCC04 71522	1 DC
.	01063			1C BADMCH	71547	CCC1C 71522	2 DC
.	01064			14 BADMCH	71550	CCC14 71522	3 DC
.	01065			2C BADMCH	71551	CCC2C 71522	4 CHAR SYNC SEQUENCE ERRO
.	01066			24 REWIND	71552	CCC24 7151C	
.	01067			3C BADMCH	71553	CCC3C 71522	6 CHAR COUNT ERROR
.	01070			34 BADMCH	71554	CCC34 71522	7 FUNCTION WORD ERROR
.	01071			EXIT	71555	61C1C 715C2	1C NORMAL COMPLETION
.	01072			44 REDUNDANT	71556	CCC44 71525	11 PARITY
.	01073			5C BADMCH	71557	CCC5C 71522	12 CONTROL UNIT SEQUENCE ERROR
.	01074			54 BADMCH	71560	CCC54 71522	13 END OF FILE
.	01075			6C ENDTAPE	71561	CCC6C 71532	14 END OF TAPE
.	01076			64 BADMCH	71562	CCC64 71522	15 NOT USED
.	01077			7C BADMCH	71563	CCC7C 71522	16 ABNORMAL FRAME COUNT
.	01100			74 INTERLCK	71564	CCC74 71541	17 INTERLOCK
.	01101	MYSERVC		FC 1* C.	71565	C5107 5C5C5	
.	01102	NEWTAPE		FC 8C*MOUNT ANOTHER OUTPUT TAPE AND RESUME	71566	22243 22331	
					71567	C5C62 32431	
					71570	15122 7C524	
					71571	32312 53231	
					71572	C531C 62512	
					71573	C5C62 31105	
					71574	27123 C3222	
					71575	12C5C 5C5C5	
.	01103	WAKEUP		FC 1CD*INTERLOCK FAULT ON OUTPUT TAPE. ..REMEDY AND RESUME	71576	16233 11227	
					71577	21241 C2CC5	
					71600	13C63 22131	
					71601	C5242 3C524	
					71602	32312 53231	
					71603	C531C 62512	
					71604	75757 52712	
					71605	22121 13605	
					71606	C6231 1C527	
					71607	12303 22212	
.	01104	ENTRANCE		JP INTERRUPT	71610	61CCC 71514	
.	01105	IOREC		RESERVE 2	71611	CCCCC CCCCC	
.	01106	ECPSENT		FC 2*ENCDFDUMP	71613	12231 12413	
					71614	11322 22505	
.	01107	INKSUM		FC 4*CKSUM...HSP TO RETRY	71615	1C203 C3222	
					71616	75757 5153C	

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.....  SPURT OUTPUT NO. 210  .....
SYSLOADER  JOB*4/8/65

CARDS  LI ID LABEL     TA STATEMENT                                    LOC    F JKB Y     NOTES

                                                                       71617  25053 12405
                                                                       71620  27123 12736
.      C1110 BSRET1        RILJP     RET1                            71621  6C100 72325
.      C1111 BSRET2        RILJP     RET2                            71622  6C100 72332
.      C1112 EOFCN4        FC   3*EOF ON D (1)                       71623  12241 30524
                                                                       71624  23051 10551
                                                                       71625  61400 50505
.      C1113 FWA           FC   1*FWA                                71626  13340 60505
.      C1114 LWA           FC   1*LWA                                71627  21340 60505
.      C1115 THEFWA        C                                         71630  00000 00000
.      C1116 THELWA        C                                         71631  00000 00000
.      C1117 STOFWA        140                                       71632  00000 00140
.      C1120 STOLWA        77776                                     71633  00000 77776
.      C1121 JPCONTROL     RILJP     L(MCPGM)                        71634  60110 63412
.      C1122 JPBSINT       RILJP     BSINT                           71635  60100 71774
.      C1123 BSDCW         C                                         71636  00000 00000
.      C1124 JPWRBS        RILJP     WRITERS                         71637  60100 71755
.      C1125 BSDONE        FC   2*B/S DONE..                         71640  07743 00511
                                                                       71641  24231 27575
.      C1126 ELECT         FC   6*I/O(1) B/S(2) CCP(3) DPP(4)        71642  16741 05161
                                                                       71643  40050 77430
                                                                       71644  51624 00510
                                                                       71645  10255 16340
                                                                       71646  05112 52551
                                                                       71647  64400 50505
.      C1127 PMODE         C                                         71650  00000 00000
.      C1130 CCPADRS       C                                         71651  00000 00000
.      C1131 DPPADRS       C                                         71652  00000 00000
.      C1132 TRANSFER      C                                         71653  00000 00000
.      C1133 ASKEOF        FC   2*EOF(1)                             71654  12241 35161
                                                                       71655  40050 50505
.      C1134 CCPDONE       FC   3*CCPGMS DONE...                     71656  10102 51422
                                                                       71657  30051 12423
                                                                       71660  12757 57505
.      C1135 DPPDONE       FC   3*DPPGMS DONE...                     71661  11252 51422
                                                                       71662  30051 12423
                                                                       71663  12757 57505
.      C1136 SRPCW         C                                         71664  00000 00000
.      C1137 JPSEARCH      RILJP     INTSRCH                         71665  60100 72153
.      C1140 BADNEWS       FC   90*OUTPUT TAPE TROUBLE.. HI SPEED    171666  24323 12532
                           O TRY AGAIN
                                                                       71667  31053 10625
                                                                       71670  12053 12724
                                                                       71671  32072 11275
                                                                       71672  75051 51605
                                                                       71673  30251 21211
                                                                       71674  05312 40531
                                                                       71675  27360 50614
                                                                       71676  06162 30505
.      D1141 LOCKEDOUT     FC   5*INTERLOCK ON SERVO B...             71677  16233 11227
                                                                       71700  21241 02005
                                                                       71701  24230 53012
                                                                       71702  27332 40507
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CARDS    L1 ID LABEL      TA STATEMENT                                  LOC    F JKA Y      NOTES

                                                                       71703  75757 5C5C5
    .    01142 SAVEBASE        D                                       71704  CCCCC CCCCC
    .    01143 SAVESTORE       E                                       71705  CCCCC CCCCC
    .    01144 BOOTSTRAP       EX-ECT    TAPE*2010CCCCC1               71706  13670 72374  REMEMBER TC STR CHAN (REW SERV
                                                                                          C A)
    .    01145 ASKFWA          RJP  PRINT                              71707  65CCC 7C767  ASK FWA
    .    01146                 1    FWA                                71710  CCCC1 71626
    .    01147                 RJP  INCOME                             71711  65CCC 7C225  PICK UP FWA
    .    01150                 IA   TYPE*W(RCWREPLY)*MONITOR           71712  7513C 7C3C4
    .    01151                 NC-UP                                   71713  12CCC CCCCC
    .    01152                 ENT  A*W(NUMBER)*ANOT                   71714  1153C 7C31C  IF FWA IS C USE STANDARD VALUE

    .    01153                 ENT  A*W(STDFWA)                        71715  11C3C 71632
    .    01154                 STR  A*L(THEFWA)                        71716  15C1C 7163L
    .    01155                 SUB  A*1                                71717  21CCC CCCC1  L-1
    .    01156                 STR  A*L(STRJP)                         71720  15C1C 71743  JP TC CONTROL
    .    01157                 STR  A*L(SUMMIT)                        71721  15C1C 71762  BEGIN CKSUM AT L-1
    .    01160                 SUB  A*1                                71722  21CCC CCCC1
    .    01161                 STR  A*L(STRUL1)                        71723  15C1C 71746  L-2
    .    01162                 STR  A*L(STRUL2)                        71724  15C1C 71751  FIRST WORD OF RECORD
    .    01163                 STR  A*L(BSBCW)                         71725  15C1C 71636  BCW FOR BOOTSTRAP
    .    01164 ASKLWA          RJP  PRINT                              71726  65CCC 7C767
    .    01165                 I    LWA                                71727  CCCC1 71627
    .    01166                 RJP  INCOME                             71730  65CCC 7C225
    .    01167                 IA   TYPE*W(RCWREPLY)*MONITOR           71731  7513C 7C3C4
    .    01170                 NC-UP                                   71732  12CCC CCCCC
    .    01171                 ENT  A*W(NUMBER)*ANOT                   71733  1153C 7C31C
    .    01172                 ENT  A*W(STDLWA)                        71734  11C3C 71633
    .    01173                 STR  A*L(THELWA)                        71735  15C1C 71631
    .    01174                 ADD  A*1                                71736  2CCCC CCCC1
    .    01175                 STR  A*U(BSBCW)                         71737  15C2C 71636  RECORD  L-2 TC U+1
    .    01176                 STR  A*L(STRCSUM)                       71740  15C1C 71764  CKSUM  IN U+1
    .    01177                 STR  A*L(SHOWCS)                        71741  15C1C 72C11
    .    01200                 ENT  C*W(JPCONTROL)                     71742  1CC3C 71634
    .    01201 STRJP           STR  C*W(0)                             71743  14C3C LCCCC  IN L-1  JP  TC CONTROL
    .    01202                 ENT  A*L(THELWA)                        71744  11C1C 71631
    .    01203                 ADD  A*1                                71745  2CCCC CCCC1
    .    01204 STRUL1          STR  A*U(0)                             71746  15C2C CCCCC  IN L-2  U=U
    .    01205                 ENT  C*L(THEFWA)                        71747  1CC1C 7163C
    .    01206                 SUB  C*1                                71750  27CCC CCCC1
    .    01207 STRUL2          STR  C*L(0)                             71751  14C1C CCCCC  BLOCK SET EXCEPT CKSUM
    .    01210                 ENT  A*L(THELWA)                        71752  11C1C 71631
    .    01211                 SUB  A*L(THEFWA)*APCS                   71753  2161C 7163C
    .    01212                 JP   ASKFWA                             71754  61CCC 717C7
    .    01213 WRITEBS         STR  TAPE*W(CHANNEL)                    71755  1767C 71544  SET TC WRITEOUT BOOTSTRAP RECO
                                                                                          RD
    .    01214                 ADD  A*2                                71756  2CCCC CCCC2
    .    01215                 STR  A*L(PPTCKSUM)                      71757  15C1C 71761
    .    01216                 CL   A*                                 71760  11CCC CCCCC
    .    01217 PPTCKSUM        PPT  C*ADV                              71761  7C1CC CCCCC
    .    01220 SUMMIT          ADD  A*W(0)                             71762  2CC3C CCCCC
    .    01221                 CP   A*                                 71763  15C4C CCCCC
    .    01222 STRCSUM         STR  A*W(0)                             71764  15C3C CCCCC  U+1 = CKSUM
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CARDS    L1 IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     01223            RIL                                         71765  60000 CCCCC
   .     01224            PUT  W(JPBSINT)*W(35)                       71766  10030 71635
                                                                      71767  14030 CCC35
   .     01225            EX-FCT    TAPE*12DOODCDO1                   71770  13670 72375
   .     01226            NO-OP                                       71771  12000 CCCCC
   .     01227            OUT  TAPE*W(BSBCW)                          71772  74670 71636
   .     01230            JP   $                                      71773  61000 71773
   .     01231 BSINT      STR  TAPE*W(CHANNEL)                        71774  17670 71544
   .     01232            ENT  A*U(CHANNEL)                           71775  11020 71544
   .     01233            RIL                                         71776  60000 CCCCC
   .     01234            RSH  A*110                                  71777  02000 CCC13
   .     01235            SUB  A*10*ANOT                              72000  21500 CCC10
   .     01236            JP   GOODREC                                72001  61000 72007
   .     01237            EX-FCT    TAPE*3010000001                   72002  13670 72376  REWIND SERVO A WITH INTERRUPT

   .     01240            PUT  W(JPWRBS)*W(35)                        72003  10030 71637
                                                                      72004  1403C CCC35
   .     01241            RIL                                         72005  60000 CCCCC
   .     01242            JP   $                                      72006  61000 72006
   .     01243 GOODREC    RJP  PRINT                                  72007  65000 70767
   .     01244            2    BSDONE                                 72010  00002 7164C
   .     01245 SHOWCS     ENT  A*W(0)                                 72011  11030 CCCCC
   .     01246            STR  A*Q                                    72012  15000 CCCCC
   .     01247            JP   $+1*STOP5                              72013  61500 72014
   .     01250 ASKAGAIN   RJP  PRINT                                  72014  65000 70767
   .     01251            6    ELECT                                  72015  00006 71642
   .     01252            RJP  INCOME                                 72016  65000 70225
   .     01253            IN   TYPE*W(BCWREPLY)*MONITOR               72017  75130 70304
   .     01254            NO-OP                                       72020  12000 CCCCC
   .     01255            ENT  B1*L(NUMBER)                           72021  12110 7031C
   .     01256            JP   L(WHATNOW+B1)                          72022  61011 72023
   .     01257 WHATNOW    0    ASKAGAIN                               72023  00000 72014  0 IS ILLEGAL
   .     01260            0    LOADTAPE                               72024  CCCCC 7CC65  1 IS IN CORE
   .     01261            0    BOOTSTRAP                              72025  CCCCC 71706  2 IS B/S
   .     01262            0    CCP                                    72026  CCCCC 72C3C  3 IS LOAD CELPGMS
   .     01263            0    CPP                                    72027  CCCCC 72125  4 IS LOAD DATA PROCESSING PGMS

   .     01264 CCF        STR  BO*CPW(PMODE)                          72030  16070 7165C  C= IN CORE -O = CCP OR CPP
   .     01265            ENT  A*L(BASEAORS)                          72031  11010 7C404
   .     01266            RJP  PRINTBA                                72032  65000 72345
   .     01267            STR  A*L(BASEAORS)                          72033  15010 7C404
   .     0127C            STR  A*L(STOREBASE)                         72034  15C10 7C127
   .     01271            STR  A*L(CCPADRS)                           72035  15010 71651
   .     01272            CL   W(OPPAORS)                             72036  16030 71652  THIS TO BE UPDATED
   .     01273            PUT  CCPOONE*L(PRPARAM)                     72037  10000 71656
                                                                      72040  14010 72117
   .     01274            PUT  CPPAORS*L(THISTOC)                     72041  10000 71652
                                                                      72042  14010 721C2
   .     01275 ENTFMOPP   ENT  A*L(CCPAORS)                           72043  11010 71651  READ IN A CELCOMP PGM
   .     01276            STR  A*L(RPTIT)                             72044  15010 72C73
   .     01277            SUB  A*1                                    72045  21000 CCCC1
   .     013CO            STR  A*L(STRLA)                             72046  15010 72C64  BA-1
   .     01301            STR  A*L(STRFA)                             72047  15C10 72C56
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CARDS    LI ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     01302            SUB  A*1                                    72050  21000 00001
   .     01303            STR  A*L(STRNAME)                           72051  15010 72061  BA-2
   .     01304            STR  A*L(ENTQBCW)                           72052  15010 72333
   .     01305            ADD  A*3                                    72053  20000 00003  BA+1
   .     01306            STR  A*L(ENTNAME)                           72054  15010 72060
   .     01307            ENT  A*L(CCPADRS)                           72055  11010 71651
   .     01310 STREA      STR  A*L(0)                                 72056  15010 00000  FWA IN L(WCP2)
   .     01311 TOMAINLOAD RJP  MAINLOAD                               72057  65000 70314
   .     01312 ENTNAME    ENT  A*W(0)                                 72060  11030 00000
   .     01313 STRNAME    STR  A*W(0)                                 72061  15030 00000  PGM NAME IN W(WCPB1 OF SEARCH
                                                                                          RECORD)
   .     01314            ENT  A*L(LASTADR)                           72062  11010 70406
   .     01315            ADD  A*1                                    72063  20000 00001  LWA IN U(WCRD2)
   .     01316 STRLA      STR  A*U(0)                                 72064  15020 00000
   .     01317            STR  A*L(FORKSUM)                           72065  15010 72075  STR CKSUM  BA TO LAST WORD IN
                                                                                          PGM
   .     01320            STR  A*U(ENTQBCW)                           72066  15020 72333
   .     01321            SUB  A*L(CCPADRS)                           72067  21010 71651
   .     01322            STR  A*L(RPTN)                              72070  15010 72072
   .     01323            CL   A*                                     72071  11000 00000
   .     01324 RPTN       RPT  C*ACV                                  72072  70100 00000
   .     01325 RPTIT      ADD  A*W(0)                                 72073  20030 00000
   .     01326            CP   A*                                     72074  15040 00000
   .     01327 FORKSUM    STR  A*W(0)                                 72075  15030 00000
   .     01330            ENT  C*W(ENTQBCW)                           72076  10030 72333
   .     01331            RJP  WRSEARCH                               72077  65000 72142
   .     01332            ENT  A*L(BASEADRS)                          72100  11010 70404
   .     01333            CCM  A*L(OPPADRS)*YMORE                     72101  04710 71652
   .     01334 THISTOO    STR  A*L(OPPADRS)                           72102  15010 71652  RUNNING START POINT FOR OP PGM
                                                                                          S
   .     01335 VARYTHIS   ENT  A*L(CCPADRS)                           72103  11010 71651
   .     01336            STR  A*W(BASEADRS)                          72104  15030 70404
   .     01337            STR  A*W(STOREBASE)                         72105  15030 70127
   .     01340            JP   TOMAINLOAD                             72106  61000 72057
   .     01341 RETCCP     RJP  PRINT                                  72107  65000 70767  FINISHED LOADING CCPS
   .     01342            2    ASKEOF                                 72110  00002 71654
   .     01343            RJP  (NCOME                                 72111  65000 70225
   .     01344            IN   TYPE*W(BCWREPLY)*MONITOR               72112  75130 70304
   .     01345            NO-UP                                       72113  12000 00000
   .     01346            ENT  A*W(NUMBER)*AZERO                      72114  11430 70310
   .     01347            EX-FCI    TAPE*0230000001                   72115  13670 72377  WEOF SERVO A
   .     01350            RJP  PRINT                                  72116  65000 70767
   .     01351 PRPARAM    3    CCPDONE                                72117  00003 71656
   .     01352            CL   W(PMODE)                               72120  16030 71650
   .     01353            ENT  A*L(CCPADRS)                           72121  11010 71651
   .     01354            STR  A*W(BASEADRS)                          72122  15030 70404
   .     01355            STR  A*W(STOREBASE)                         72123  15030 70127
   .     01356            JP   ASKAGAIN                               72124  61000 72014
   .     01357 OPT        STR  PC*CPW(PMODE)                          72125  16070 71650
   .     01360            PUT  OPPDONE*L(PRPARAM)                     72126  10000 71661
                                                                      72127  14010 72117
   .     01361            ENT  A*L(OPPADRS)                           72130  11010 71652
   .     01362            RJP  PRINTBA                                72131  65000 72345
```

CARDS	LI ID LABEL	TA STATEMENT	LOC	F JKD Y	NOTES
.	01363	STR A*L(OPPADRS)	72132	15010 71652	
.	01364	PUT L(OPPADRS)*L(CCPADRS)	72133	10010 71652	
			72134	14010 71651	
.	01365	STR C*W(BASEADRS)	72135	14030 70404	
.	01366	STR C*W(STOREBASE)	72136	14030 70127	
.	01367	PUT -C*L(THISIOD)	72137	10040 77777	
			72140	14010 72102	
.	01370	JP ENTEMOPP	72141	61000 72043	
.	01371 WRSEARCH	ENTRY	72142	61000 00000	
.	01372	STR C*W(SRRCW)	72143	14030 71664	
.	01373	RIL	72144	60000 00000	
.	01374	PUT W(IPSEARCH)*W(35)	72145	10030 71665	
			72146	14030 00035	
.	01375 REW	EX-FCT TAPE*12000000001	72147	13670 72375	
.	01376	NO-OP	72150	12000 00000	
.	01377	OUT TAPE*W(SRRCW)	72151	74670 71664	
.	01400	JP F	72152	61000 72152	
.	01401 INTSRCH	STR TAPE*W(CHANNEL)	72153	17670 71544	
.	01402	ENT A*U(CHANNEL)	72154	11020 71544	
.	01403	RIL	72155	60000 00000	
.	01404	RSH A*110	72156	02000 00013	
.	01405	ADD A*WHRJP	72157	20000 72162	
.	01406	STR A*L(S+1)	72160	15010 72161	
.	01407	JP L(C)	72161	61010 00000	
.	01410 WHRJP	CC NO	72162	00000 72202	
.	01411	04 NO	72163	00004 72202	
.	01412	10 NO	72164	00010 72202	
.	01413	14 NO	72165	00014 72202	
.	01414	20 NO	72166	00020 72202	
.	01415	24 REW	72167	00024 72147	
.	01416	30 NO	72170	00030 72202	
.	01417	34 NO	72171	00034 72202	
.	01420	EXIT	72172	61010 72142	
.	01421	44 NO	72173	00044 72202	
.	01422	50 NO	72174	00050 72202	
.	01423	54 NO	72175	00054 72202	
.	01424	60 NO	72176	00060 72202	
.	01425	64 NO	72177	00064 72202	
.	01426	70 NO	72200	00070 72202	
.	01427	74 ICLOCK	72201	00074 72210	
.	01430 NO	EX-FCT TAPE*20300000001	72202	13670 72400	BACK-SPACE 1 RECORD SERVO A
.	01431	RPT 7777	72203	70000 07777	
.	01432	NO-OP	72204	12000 00000	
.	01433	RJP PRINT	72205	65000 70767	
.	01434	90 BADWEWS	72206	00011 71666	
.	01435	JP REW*STOP	72207	61400 72147	
.	01436 ICLOCK	RJP PRINT	72210	65000 70767	
.	01437	5 LOCKEDOUT	72211	00005 71677	
.	01440	JP REW*STOP	72212	61400 72147	
.	01441 DO220	CL W(ECPIND)	72213	16030 72344	
.	01442	RJP READ2WDS	72214	65000 72261	
.	01443	RJP READNWDS	72215	65000 72274	
.	01444	PUT W(BASEADRS)*W(SAVEBASE)	72216	10030 70404	

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CARDS    L1 ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES
                                                                     72217  14C3C 717C4
      .  01445                 PUT  W(STOREBASE)*W(SAVESTORE)        72220  1CC3C 7C127
                                                                     72221  14C3C 717C5
      .  01446                 CL   W(BASEADRS)                      72222  14C3C 7C4C4
      .  01447                 CL   W(STOREBASE)                     72223  14C3C 7C127
      .  01450                 ENT  A*L(IDREC)                       72224  11C1C 71611
      .  01451                 STR  A*L(PICUTAG)                     72225  15C1C 7223C
      .  01452                 ADD  A*1                              72226  2CCCC CCCC1
      .  01453                 STR  A*L(PICNAME)                     72227  15C1C 72232
      .  01454 PICUTAG         PUT  W(0)*W(INSTR)                    72230  1CC3C CCCCC
                                                                     72231  14C3C 7C443
      .  01455 PICNAME         PUT  W(0)*W(INSTR+1)                  72232  1CC3C CCCCC
                                                                     72233  14C3C 7C444
      .  01456                 RJP  PUTABLE                          72234  65CCC 7C41C
      .  01457                 ENT  A*L(IDREC)                       72235  11C1C 71611
      .  01460                 STR  A*W(STOREBASE)                   72236  15C3C 7C127
      .  01461                 ADD  A*U(HEADING+7)                   72237  2CC2C 7C4C2
      .  01462                 SUB  A*1                              72240  21CCC CCCC1
      .  01463                 STR  A*W(LASTADR)                     72241  15C3C 7C4CE
      .  01464                 JP   $+2*KEY1                         72242  611CC 72244
      .  01465                 RJP  CCLOG                            72243  65CCC 7C54C
      .  01466                 PUT  W(SAVEBASE)*W(BASEADRS)          72244  1CC3C 717C4
                                                                     72245  14C3C 7C4C4
      .  01467                 PUT  W(SAVESTORE)*W(STOREBASE)        72246  1CC3C 717C5
                                                                     72247  14C3C 7C127
      .  01470 CYCLEA          RJP  READ2WDS                         72250  65CCC 72261
      .  01471                 ENT  A*W(IDREC)                       72251  11C3C 71611
      .  01472                 SUB  A*W(EOPSENT)*AZERO               72252  2143C 71613
      .  01473                 JP   NCTEND                           72253  61CCC 72257
      .  01474                 ENT  A*W(IDREC+1)                     72254  11C3C 71612
      .  01475                 SUB  A*W(EOPSENT+1)*ANOT              72255  2153C 71614
      .  01476                 JP   CONE32C                          72256  61CCC 7C742
      .  01477 NCTEND          RJP  READNWDS                         72257  65CCC 72274
      .  01500                 JP   CYCLEA                           72260  61CCC 72250
      .  01501 READ2WDS        ENTRY                                 72261  61CCC CCCCC
      .  01502 ENTERDS         RJP  READTAPE                         72262  65CCC 7123C
      .  01503                 U-TAG     IDREC+1*IDREC               72263  71612 71611
      .  01504                 JP   $+2*KEY2                         72264  612CC 72266
      .  01505                 JP   $+3                              72265  61CCC 7227C
      .  01506                 RJP  WRITE                            72266  65CCC 715C2
      .  01507                 U-TAG     IDREC+1*IDREC               72267  71612 71611
      .  01510                 ENT  A*W(IDREC)                       72270  11C3C 71611
      .  01511                 STR  A*W(RIGP1)                       72271  15C3C 72276
      .  01512                 STR  A*W(RIGP2)                       72272  15C3C 723C2
      .  01513                 EXIT                                  72273  61C1C 72261
      .  01514 READNWDS        ENTRY                                 72274  61CCC CCCCC  LOAD (AND COPY) VARIABLE BLOCK

      .  01515                 RJP  READTAPE                         72275  65CCC 7123C
      .  01516 RIGP1           C                                     72276  CCCCC CCCCC
      .  01517                 JP   $+2*KEY2                         72277  612CC 723C1
      .  01520                 JP   $+3                              723CC  61CCC 723C3
      .  01521                 RJP  WRITE                            723C1  65CCC 715C2
      .  01522 RIGP2           C                                     723C2  CCCCC CCCCC
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CARDS    LI ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     01523              ENT  A*U(BIGP1)                         72303  11C2C 72276  LWA
   .     01524              SUB  A*L(BIGP1)                         72304  21C1C 72276  FWA
   .     01525              ADD  A*1                                72305  2CCCC CCCC1  +1 = NC WORDS TO SUM
   .     01526              STR  A*L(QSUM)                          72306  15C1C 72312  RPT INSTR
   .     01527              ENT  A*L(BIGP1)                         72307  11C1C 72276
   .     01530              STR  A*L(STRTHRE)                       72310  15C1C 72313  LOCATION OF FW
   .     01531              CL   A*                                 72311  11CCC CCCCC
   .     01532 QSUM         RPT  E*ADV                              72312  7C1CC CCCCC
   .     01533 STRTHRE      ADD  A*W(0)                             72313  2CC3C CCCCC
   .     01534              SUB  A*W(IDREC+1)*ANOT                  72314  2153C 71612
   .     01535              EXIT                                    72315  61C1C 72274  CHECK SUM OK
   .     01536              RJP  PRINT                              72316  65CCC 7C767
   .     01537              4    INKSUM                             72317  CCCC4 71615
   .     01540              PUT  W(BSRET1)*W(35)                    72320  1CC3C 71621
                                                                    72321  14C3C CCC35
   .     01541              RIL                                     72322  6CCCC CCCCC
   .     01542              EX-FCT     TAPE*3030CCCC004             72323  1367C 72401
   .     01543              JP   $                                  72324  61CCC 72324
   .     01544 RET1         PUT  W(BSRET2)*W(35)                    72325  1CC3C 71622
                                                                    72326  14C3C CCC35
   .     01545              RIL                                     72327  6CCCC CCCCC
   .     01546              EX-FCT     TAPE*3030CCCC004             72330  1367C 72401
   .     01547              JP   $                                  72331  61CCC 72331
   .     01550 RET2         JP   ENTERBS                            72332  61CCC 72262
   .     01551 ENTERC*      0                                       72333  CCCCC CCCCC
   .     01552 FORMATERR    FC   3*NOT 320/321                      72334  23243 1C563
                                                                    72335  62247 46362
                                                                    72336  61C5C 5C5C5
   .     01553 PGMBA        0                                       72337  CCCCC CCCCC
   .     01554 ASKBA        FC   3*B/A OTHER THAN                   72340  C774C 6C524
                                                                    72341  31151 22705
                                                                    72342  3115C 623C5
   .     01555 WILLUSE      0                                       72343  CCCCC CCCCC
   .     01556 SOPIND       0                                       72344  CCCCC CCCCC
   .     01557 PRINTBA      ENTRY                                   72345  61CCC CCCCC
   .     01560              STR  A*L(PGMBA)                         72346  15C1C 72337
   .     01561              BSH  AQ*15D                             72347  C3CCC CCC17
   .     01562              RJP  KCCTTOFD                           72350  65CCC 71436
   .     01563              STR  A*W(WILLUSE)                       72351  15C3C 72343
   .     01564              RJP  PRINT                              72352  65CCC 7C767
   .     01565              4    ASKBA                              72353  CCC04 7234C
   .     01566              RJP  INCOME                             72354  65CCC 7C225
   .     01567              IN   TYPE*W(BCWREPLY)*MONITOR           72355  7513C 7C3C4
   .     01570              NC-UP                                   72356  12CCC CCCCC
   .     01571              ENT  A*W(NUMBER)*NOT                    72357  1153C 7C31C
   .     01572              ENT  A*L(PGMBA)                         72360  11C1C 72337
   .     01573              EXIT                                    72361  61C1C 72345
   .     01574              RESERVE    1                            72362  CCCCC CCCCC
                                                                    72363  023CC CCC1C
                                                                    72364  211CC CCCC4
                                                                    72365  C5C5C 5C5C5
                                                                    72366  52CCC CCCC4
                                                                    72367  2C3CC CCCC4
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CARDS	LI	ID LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
				72370	12	000	0001	
				72371	20	300	0001	
				72372	00	300	0001	
				72373	21	100	0001	
				72374	20	100	0001	
				72375	12	000	0001	
				72376	30	100	0001	
				72377	02	300	0001	
				72400	20	300	0001	
				72401	30	300	0004	

END OF LISTING

SYSLOADER JOB*4/8/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
A$$$$$1111	72363	A$$$$$1112	72364	A$$$$$1113	72365
A$$$$$1114	7C545	A$$$$$1115	72366	A$$$$$1116	72367
A$$$$$1117	72370	A$$$$$1118	72371	A$$$$$1119	72372
A$$$$$1114	72373	A$$$$$111B	72374	A$$$$$111C	72375
A$$$$$111D	72376	A$$$$$111E	72377	A$$$$$111F	7240C
A$$$$$1119	7240I	ACQAZIM	63071	ACQELEV	63C75
ACQUI	64427	ACRLFS	7C150	ACTLALTIME	63142
ADDPOIM	7C717	ADDLOWER	707C5	ADDUPPER	7C712
ADSCN	63416	AESCN	63417	ALCCNE	7C275
ALNGOFFSET	63517	ANAL	7C320	ARCCFAZIM	63524
ARCCFDEC	63526	ARCOFELEV	63522	ARCCFRA	6353C
ASKBAGAIN	72014	ASKBA	72340	ASKBASE	7CC32
ASKCOF	71654	ASKFWA	71707	ASKIC	7C107
ASKLWA	71726	ASTRODEC	63106	ASTRORA	631C5
ASWAS	7C152	ATENDOFILE	7C066	ATTHIS	7C621
AUPEREQUAT	63341	AZELOTIME	63532	AZELBXSCAN	635CC
AZIM	63053	AZIMOFFSCT	63512	AZIMOUT	64CCC
AZIMOVER	63325	AZIMADD	63442	AZIMIN	75CCC
AZMTHSCAN	635C1	BOOTSTRAP	717U6	BCDYSIZE	63462
BACK	71252	BADHEAD	7C336	BACMCH	71522
BADNEWS	71666	BASEADRS	7C404	BCWBAC	7C407
BCWCRLF	7C220	BCWERAS	7C312	BCWREPLY	7C304
BIGPI	72276	BIGP2	72302	BLOCK	7C577
BLASTOFF	63146	BSBCW	71636	BSCCNE	7164C
BSINT	71774	BSRET1	71621	BSRET2	71622
BUFFERPRNT	71030	COCON	63414	COLUMNHEAD	7C153
COMPCKSM	7C656	COMPLETE	7C130	CONVERTIME	63135
CORCT	63420	COSORIENT	63065	CCSAZEL	63C7C
COUNTER	71227	C15EXTINT	71243	CAZIM	63C6C
CCP	72C30	CCPADRS	71651	CCPCCNE	71656
CELBODY	63113	CELCOMPGM	63424	CELEV	63C61
CELTIME	63133	CHANNEL	71544	CHARS	7C405
CHCCR	63422	CHGADR	71016	CHPAR	63431
CKIN	7C247	CKKEY1	7CU52	CKSUM	7C702
CLEAROUT	7CC57	CRANGE	63057	CRLF	7C217
CRLFCODE	7C222	CRLFRT	7C211	CPSSCFFSET	63516
CYCLEA	72250	CC320	72213	CC321	7C343
DCAGAIN	7C664	CDCRLF	7C276	DCIT	7C257
DCLCG	7C540	CDMODIF	7C526	CDNF32C	7C742
DCNTDO	7C264	CDPPOUT	66C00	DCPPACC	63444
DATANALYZE	63425	DAY	6315C	DFC	63C03
DECOFFSET	63515	DECOOT	63C1C	DECLINSCAN	63505
DELTATEE	63316	DESIRED	7C151	DEXPLA	7C235
DPP	72125	DPPADRS	71652	DPPCCNE	71661
DSECONDS	63141	DUMMY	71452	DUMSECTTC	63154
DYCMP	63421	EOFON4	71623	ECPINC	72344
EOPSENT	71613	ELECT	71642	ELEV	63C54
ELEVOFFSET	63513	ELEVOUT	65C0C	ELEVACC	63443
ELEVIN	76000	ELVTNSCAN	63502	END	7CC7C
ENDOFTAPM	71464	ENDPROG	7C731	ENDTAPE	71532
ENDTAPEM	71473	ENDTAPEU	71501	ENTERBS	72262

SYSLOADER JOB 4/5/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
ENTERXRS	7C756	ENTFMDPR	72043	ENTNAME	72C6C
ENTQBCW	72344	ENTRANCE	7161C	EQUATOR	63323
ERASURE	7C306	ESTSHIFTED	63143	EXCESS6C	71454
EXECINSTR	7C723	EXPNAME	63350	FCREWIND	7151C
FORKSUM	72075	FORMATERR	72334	FCTBACKUP	7C704
FDSTATCODE	71334	FDTAPEPAR	71402	FIRSTELEV	63104
FIRSTHRU	63153	FLATTENING	63337	FRAMESIZE	63101
FREQUENCY	63317	FWA	71626	GCCCREC	72C07
GOBACK	7C273	GEOCENLAT	63322	GFCCETLAT	63321
GETBACK	71216	GMTMODU24	63145	GMTSHIFTED	63144
HOLDNOHOLD	63511	HOURMINUTE	63137	HOLRREG	63151
HEADCOLMS	7C132	HEADING	7C373	HEIGHT	63326
HERE	71513	IOLOCK	72210	ID1CRADIC	66777
ID11RADIO	67776	ID12RADIO	67777	ID13RADIC	7C775
ID14RADIO	7C776	ID15RADIO	71776	ID16RADIC	71777
ID17RADIO	72776	ID18RADIO	72777	ID19RADIL	73776
ID1CELCOR	63000	ID1ENTRNT	6341C	ID1RADCCR	63C5C
ID1RADIO	63440	ID1RECRD	63210	ID1SYSENT	77576
ID1SYSNAM	77676	ID1SYSPAR	6331C	ID1TIME	6313C
ID20RADIO	73777	ID21RADIO	74776	ID22RADIC	74777
ID23RADIO	75776	ID24RADIO	75777	ID25RADIC	76775
ID26RADIO	76776	ID2CELCOR	63001	ID2ENTPNT	63411
ID2RADCOR	63051	ID2RADIC	63441	ID2RECRD	63211
ID2SYSENT	77577	ID2SYSNAM	77677	ID2SYSRAR	63311
ID2TIME	63131	ID3RADIC	63776	ID4RADIC	63777
ID5RADIO	64776	ID6RADIC	64777	ID7RADIC	65776
ID8RADIO	65777	ID9RADIC	66776	IDREC	71611
INAZIMADD	63446	INBUFFER	71236	INCOME	7C225
INELEVADD	63447	INKSUM	71615	INPUTAPENC	71456
INSTR	7C443	INTER	63413	INTERAZIM	72CCC
INTERCOM	63426	INTERDOPP	74000	INTERELEV	73CCC
INTERJUMP	71251	INTERLOCK	71254	INTERLOCKP	71261
INTERLCK	71541	INTERLCKSW	6346C	INTERRANCE	76777
INTERRUPT	71514	INTJUMP	71521	INTSRCH	72153
JPCVERJP	7C311	JPBSINT	71635	JPCONTROL	71634
JPC15EXT	71336	JPCKIN	7C305	JRCRLF	7C221
JPGOBACK	7C307	JPPRINTOVR	71026	JPSEARCH	71665
JPTDIT	7C703	JPWRBS	71637	KCCTTCFC	71436
KMPERNM	63342	KYBRDLEVEL	63110	LCCP1	71217
LOCRLIMIT	71224	LOOPREPLY	7C243	LCCRSTART	71215
LOADTAPE	7C065	LOCKEDOUT	71677	LCCKP	71267
LOGINFO	7C012	LONGITUDE	63320	LASTADR	7C406
LSRERAU	63336	LWA	71627	MODIFENT	7C435
MODIFSTORE	7C616	MODIFTABLE	7C532	MACHERR	71422
MACHERROR	71424	MACHFAULT	71315	MAINLOAD	7C314
MAINSWITCH	63334	MAYBE320	7C333	MCRFILLER	71CCC
MCROM	63412	MCPID	7C126	MILLSTNACC	63451
MINREG	63152	MSFREQ	63332	MYSERVC	71565
NOCRLFS	7C147	NOTEND	72257	NOTMCP	7C431
NEWTAPE	71566	NEXRLA	7C230	NEXTDC	7C726
NG	72202	NKCLEAR	7C662	NMRERAU	6334C

SYSLOADER JOD*4/8/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
NNE	7C7CO	NNLYTWO	7C677	NUMBER	7C31C
NUMCLEARS	7C056	NVERJP	7C3C2	PCLE	63324
PARITY	71337	PARITYMSG	71354	PERIODAZIM	63523
PERIODDEC	63525	PERIODELEV	63521	PERIODRA	63527
PGMBA	72337	PICNAME	72232	PICLTAG	7223C
PLOTP	63436	PLANP	63434	PMODE	7165C
PMSG	71366	PREVIOUSTM	63461	PRINT	7C767
PRINTOVER	71022	PRINTBA	72345	PRINTBUFFC	71C27
PRLOG	63423	PRPARAM	72117	PUTENCE	7CC04
PUTABLE	7C410	PUTCOUNTER	71203	QSUM	72312
ROTATEAERX	63507	ROTATERADN	63506	RCTATERDEX	6351C
RA	63002	RADIFFSET	63514	RADCT	63C07
RADARMODE	63312	RADCBXSCAN	63503	RADECOTIME	63531
RADIODEC	63541	RADIOMETER	63102	RADIORA	6354C
RADIUS	63006	RADIUSDOT	63011	RANGE	63C52
RANGEOUT	7C777	RANGEADD	63445	RANGEOCT	63C62
RASCINSCAN	63504	RDMTR	63430	RDXXX	63433
READ2WDS	72261	READNWDS	72274	READTAPE	7123C
RECORD	7C436	RECORDSIZE	63112	RECAZIM	67CCO
RECELEV	7CCC0	RECFILE	63212	RECRO	63415
RECRCSWTCH	63155	REDUNDANT	71525	RELEASESw	63156
REPLY	7C313	RET1	72325	RET2	72332
RETCOP	72107	RETNUP	7C63C	REw	72147
RPTCKSUM	71761	RPTIT	72073	RPTN	72C72
SAVEBASE	71704	SAVESTORE	71705	SAZIM	63C55
SCELTIME	63134	SDEC	63005	SECONDS	6314C
SECNDHEAD	7C172	SELEV	63056	SETUP	7C775
SHOWCS	72011	SIDERTIME	63012	SINCRIENT	63C64
SINAZEL	63066	SKIP	63331	SRA	63C04
SRADTIME	63136	SRBCW	71664	STOREBASE	7C127
STOREGR	71012	STORELF	71013	STOREUNPAK	71221
STOREXRS	7C746	STORPROG	7C362	STATCODE	71545
STATUS	71455	STATUSCODE	71275	STCFWA	71632
STCLWA	71633	STRCSUM	71764	STRFA	72C56
STRJP	71743	STRLA	72064	STRNAME	72C61
STRTHRE	72313	STRUL1	71746	STRLL2	71751
SUMMIT	71762	SYNCTIMING	63542	SYSCOMREG1	63452
SYSCOMREG2	63453	SYSCOMREG3	63454	SYSCOMREG4	63455
SYSCOMREG5	63456	SYSCOMREG6	63457	SYSENTRIES	776CC
SYSLOADER	7CCC0	SYSLOR	7C002	SYSNAMES	777CC
SYSTAT1	63313	SYSTAT2	63314	SYSTATC	63315
TCIT	70672	TOMAINLOAD	72057	TARCT	7C131
TAPEPARMSG	71367	THEFWA	71630	THELWA	71631
THISTOU	721C2	TIMECORR	63107	TIMEMODE	63103
TIMEP	63435	TIMETOHOLD	63520	TRANSFER	71653
TRUERANGE	63063	TRUETIME	63132	TRYAGAIN	7135C
TTYSTATUS	63111	TWOSECDOP	63017	TYPEID	7CCC6
UB2LB3	7C764	UB4LB5	7C765	UB6	7C766
UNIT2LU	71421	UNITNO	71327	UNITNCINT	71274
UNPACK	71177	UNPACKCODE	71002	UPDATBASE	7C733
USE1C000	7C047	VARYTHIS	72103	VELOFLIGHT	63335

..... SPURT OUTPUT NO. 211 .....

SYSLOADER JDD*4/8/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
VIZDEC1	63014	VIZDEC2	63016	VIZRA1	63C13
VIZRA2	63015	WAIT1	71242	WAITPRINT	71C21
WAKEUP	71576	WFORD	63432	WFACD	6345C
WFFREQ	63333	WHATBASE	7C122	WHATNCW	72C23
WHICHONE	7C025	WHRJP	72162	WILLUSE	72343
WRITE	71502	WRITEOUT	71512	WRITEBS	71755
WRITEEOF	71415	WRSEARCH	72142	YEARMONTH	63147
YRTRAN	63327	ZERO	7C701	ZRTRAN	6333C

END OF LISTING

SYSLOADER JOB*4/8/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
ID1CELCOR	63000	ID2CELCOR	63001	RA	63002
DEC	63003	SRA	63004	SDEC	63005
RADIUS	63006	RADOT	63007	DECDOT	63010
RADIUSDOT	63011	SIDERTIME	63012	VIZRA1	63013
VIZDEC1	63014	VIZRA2	63015	VIZDEC2	63016
TWOSECDOP	63017	ID1RADCOR	63050	ID2RADCOR	63051
RANGE	63052	AZIM	63053	ELEV	63054
SAZIM	63055	SELEV	63056	CRANGE	63057
CAZIM	63060	CELEV	63061	RANGEDOT	63062
TRUERANGE	63063	SINORIENT	63064	COSORIENT	63065
SINAZEL	63066	COSAZEL	63070	ACQAZIM	63071
ACQELEV	63075	FRAMESIZE	63101	RADIOMETER	63102
TIMEMODE	63103	FIRSTELEV	63104	ASTRORA	63105
ASTRODEC	63106	TIMECORR	63107	KYBRDLEVEL	63110
TTYSTATUS	63111	RECOROSIZE	63112	CELBODY	63113
ID1TIME	63130	ID2TIME	63131	TRUETIME	63132
DELTIME	63133	SDELTIME	63134	CONVERTIME	63135
SRADTIME	63136	HOURMINUTE	63137	SECONDS	63140
USECONDS	63141	ACTUALTIME	63142	ESTSHIFTED	63143
GMTSHIFTED	63144	GMTMODU24	63145	BLASTOFF	63146
YEARMONTH	63147	DAY	63150	HOURREG	63151
MINREG	63152	FIRSTHRU	63153	DUMSECTTO	63154
RECRDSWTCH	63155	RELEASESW	63156	ID1RECRD	63210
ID2RECRD	63211	RECFILE	63212	ID1SYSPAR	63310
ID2SYSPAR	63311	RADARMODE	63312	SYSTAT1	63313
SYSTAT2	63314	SYSTATD	63315	DELTATEE	63316
FREQUENCY	63317	LONGITUDE	63320	GEODETLAT	63321
GEOCENLAT	63322	EQUATOR	63323	POLE	63324
AZIMOVER	63325	HEIGHT	63326	YRTRAN	63327
ZXTRAN	63330	SKIP	63331	MSFREQ	63332
WFFREQ	63333	MAINSWITCH	63334	VELOFLIGHT	63335
LSPERAU	63336	FLATTENING	63337	NMPERAU	63340
AUPERENUAT	63341	KMPERNM	63342	EXPNAME	63350
ID1ENTPNT	63410	ID2ENTPNT	63411	MOPEM	63412
INTER	63413	COCON	63414	RECRD	63415
ADSCN	63416	AESCN	63417	CORCT	63420
DYCMP	63421	CHCOR	63422	PRLOG	63423
GELCOMPGM	63424	DATANALYZE	63425	INTERCOM	63426
ACQUI	63427	RDMTR	63430	CHPAR	63431
WFORD	63432	RDXXX	63433	PLANP	63434
TIMEP	63435	PLOTP	63436	ID1RADIC	63440
ID2RADIO	63441	AZIMADD	63442	ELEVADC	63443
DOPPADD	63444	RANGEADD	63445	INAZIMADC	63446
INELEVADC	63447	WFADD	63450	MILLSINADC	63451
SYSCOMREG1	63452	SYSCOMREG2	63453	SYSCOMREG3	63454
SYSCOMREG4	63455	SYSCOMREG5	63456	SYSCOMREG6	63457
INTERLCKSW	63460	PREVIOUSTM	63461	BODYSIZE	63462
AZELBXSCAN	63500	AZMTHSCAN	63501	ELVTNSCAN	63502
RADOBXSCAN	63503	RASCINSCAN	63504	DECLINSCAN	63505
ROTATERADN	63506	ROTATEAEBX	63507	ROTATERDBX	63510
HOLDNOHOLD	63511	AZIMOFFSET	63512	ELEVOFFSET	63513

SYSLOADER JCD•4/8/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
RACOFFSET	63514	DECOFFSET	63515	CRSSOFFSET	63516
ALAGOFFSET	63517	TIMETOHOLD	63520	PERIGCELEV	63521
ARCOFELEV	63522	PERIODAZIM	63523	ARCOFAZIM	63524
PERICODEC	63525	ARCOFDEC	63526	PERIGCRA	63527
APOGRA	63530	RADECOTIME	63531	AZELOTIME	63532
RADIORA	63540	RADIODEC	63541	SYNCTIMING	63542
ID3RADIO	63776	ID4RADIO	63777	AZIMOUT	64000
ID5RADIO	64776	ID6RADIO	64777	ELEVOUT	65000
ID7RADIO	65776	ID8RADIO	65777	DOPPOUT	66000
ID9RADIO	66776	ID10RADIO	66777	RECAZIM	67000
ID11RADIO	67776	ID12RADIO	67777	SYSLOADER	70000
RECELEV	70000	SYSLOR	70002	PLTONCE	70004
TYPEID	70006	LOGINFO	70012	WHICHONE	70025
ASKBASE	70032	LSE10000	70047	OKKEY1	70052
NUMCLEARS	70056	CLEAROUT	70057	LOADTAPE	70065
ATENDOFILE	70066	END	70070	ASKIC	70107
WHATBASE	70122	MCPID	70126	STOREBASE	70127
COMPLETE	70130	TABCT	70131	HEADCOLMS	70132
NOCRLFS	70147	ACRLFS	70150	DESIREC	70151
ASWAS	70152	COLUMNHEAD	70153	SECNDHEAL	70172
CRLERT	70211	CRLF	70217	BCWCRLF	70220
JPCRLF	70221	CRLFCODE	70222	INCOME	70225
NEXPLA	70230	DEXPLA	70235	LOOPREPLY	70243
OKIN	70247	COIT	70257	DONICC	70264
GOBACK	70273	ALDONE	70275	DOCRLF	70276
NVERJP	70302	BCWREPLY	70304	JPOKIN	70305
ERASURE	70306	JPGOBACK	70307	NUMBER	70310
JPOVERJP	70311	BCWERAS	70312	REPLY	70313
MAINLOAD	70314	ANAL	70320	MAYBE32C	70333
BADHEAD	70336	CO321	70343	STORPROG	70362
HEADING	70373	BASEADRS	70404	CHARS	70405
LASTADR	70406	BCWBAD	70407	PUTABLE	70410
NOIMOP	70431	MODIFENT	70435	RECORC	70436
INSTR	70443	COMODIF	70526	MODIFTABLE	70532
DOLOG	70540	A$$$$$1114	70545	BLOCK	70577
MODIFSTORE	70616	ATTHIS	70621	RETNUP	70630
COMPCKSM	70656	NKCLEAR	70662	DOAGAIN	70664
TOIT	70672	NNLYTWO	70677	NAE	70700
ZERO	70701	CKSUM	70702	JPTOIT	70703
FOTBACKUP	70704	ADDLOWER	70705	ADDUPPER	70712
ADDRDIN	70717	EXECINSTR	70723	NEXTOC	70726
ENDPROG	70731	LPDATBASE	70733	DONE32C	70742
STOREXRS	70746	ENTERXRS	70755	UB2LB3	70764
UB4LB5	70765	LB6	70766	PRINT	70767
SETUP	70775	ID13RADIO	70775	ID14RADIL	70776
RANGEOUT	70777	MCPFILLER	71000	UNPACKCOLE	71002
STOREGR	71012	STORELF	71013	CHGADR	71016
WAITPRINT	71021	PRINTOVER	71022	JPPRINTOVR	71026
PRINTBUFFC	71027	BUFFERPRNT	71030	UNPACK	71177
PUTCOUNTER	71203	LOOPSTART	71215	GETPACK	71216
LOOP1	71217	STOREUNPAK	71221	LOOPLIMIT	71224

..... SPURT OUTPUT NO. 212 .....

SYSLOADER JCD*4/8/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
COUNTER	71227	READTAPE	71230	INBUFFER	71236
WAIT1	71242	C15EXTINT	71243	INTERJUMP	71251
BACK	71252	INTERLOCK	71254	INTERLOCKP	71261
LOCKP	71267	UNITNOINT	71274	STATUSCODE	71275
MACHFAULT	71315	UNITNO	71327	FDSTATCODE	71334
JPC15EXT	71336	PARITY	71337	TRYAGAIN	71350
PARITYMSG	71354	PMSG	71366	TAPEPARMSG	71367
FDTAPEPAR	71402	WRITEEOF	71415	UNIT2IC	71421
MACHERR	71422	MACHERROR	71424	KCCTICFC	71436
DUMMY	71452	EXCESS&C	71454	STATUS	71455
INPUTAPEND	71456	ENDOFTAPM	71464	ENDTAPEM	71473
ENDTAPEU	71501	WRITE	71502	FOREWIND	71510
WRITEOUT	71512	HERE	71513	INTERRUPT	71514
INTJUMP	71521	BADMCH	71522	RECUNDANT	71525
ENDTAPE	71532	INTERLCK	71541	CHANNEL	71544
STATCODE	71545	MYSERVU	71565	NEWTAPE	71566
WAKEUP	71576	ENTRANCE	71610	IEREC	71611
EOPSENT	71613	INKSUM	71615	BSRET1	71621
BSRET2	71622	EOFON4	71623	FWA	71626
LWA	71627	THEFWA	71630	THELWA	71631
STDFWA	71632	STDLWA	71633	JPCONTROL	71634
JPBSINT	71635	BSBCW	71636	JPWRBS	71637
BSDONE	71640	ELECT	71642	PMODE	71650
CCPADRS	71651	CPPADRS	71652	TRANSFER	71653
ASKEOF	71654	CCPDONE	71656	DPPDONE	71661
SRBCW	71664	JPSEARCH	71665	BADNEWS	71666
LOCKEDOUT	71677	SAVEBASE	71704	SAVESTORE	71705
BOOTSTRAP	71706	ASKFWA	71707	ASKLWA	71726
STRJP	71743	STRUL1	71746	STRUL2	71751
WRITEBS	71755	RPTCKSUM	71761	SUMMIT	71762
STRCSUM	71764	BSINT	71774	IC15RADIC	71776
IO16RADIC	71777	INTERAZIM	72000	GOODREC	72007
SHOWCS	72011	ASKAGAIN	72014	WHATNOW	72023
CCP	72030	ENTFMDPP	72043	STRFA	72056
TOMAINLOAD	72057	ENTNAME	72060	STRNAME	72061
STRLA	72064	RPTN	72072	RPTIT	72073
FORKSUM	72075	THISTOO	72102	VARYTHIS	72103
RETCCP	72107	PRPARAM	72117	DPP	72125
WRSEARCH	72142	REW	72147	INTSRCH	72153
WHRJP	72162	NG	72202	ICLOCK	72210
DC32C	72213	PICUIAG	72230	PICNAME	72232
CYCLEA	72250	NOTEND	72257	READ2WDS	72261
ENTERBS	72262	READNWDS	72274	BIGP1	72276
BIGP2	72302	CSUM	72312	STRTHRE	72313
RET1	72325	RET2	72332	ENTCPCW	72333
FORMATERR	72334	PGMBA	72337	ASKBA	72340
WILLUSE	72343	EOPIND	72344	PRINTBA	72345
A$$$$$1111	72363	A$$$$$1112	72364	A$$$$$1113	72365
A$$$$$1115	72366	A$$$$$1116	72367	A$$$$$1117	72370
A$$$$$111B	72371	A$$$$$111G	72372	A$$$$$111A	72373
A$$$$$111H	72374	A$$$$$111C	72375	A$$$$$111D	72376

..... SPURT OUTPUT NO. 212 .....

SYSLOADER JOD*4/8/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
A$$$$$111E	72377	A$$$$$111F	72400	A$$$$$111G	72401
ID17RADIO	72776	ID18RADIO	72777	INTCRELEV	73CCC
ID19RADIO	73776	ID20RADIO	73777	INTERDCPP	74CCC
ID21RADIO	74776	ID22RADIO	74777	AZIMIN	75CCC
ID23RADIO	75776	ID24RADIO	75777	ELEVIN	76CCC
ID25RADIO	76776	ID26RADIO	76776	INTERRANGE	76777
ID1SYSENT	77576	ID2SYSENT	77577	SYSENTRIES	776CC
ID1SYSNAM	77676	ID2SYSNAM	77677	SYSNAMES	777CC

END OF LISTING

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                    ..........  SPURT OUTPUT NO. 210  ..........
                          TAPECOPY          MATHIASEN*8/21/64

CARDS   LI ID LABEL      TA STATEMENT                              LOC    F JKB Y      NOTES

   .    CC000 TAPECOPY       PROGRAM   MATHIASEN*8/21/64
   .    CC001 TAPE           MEANS     C15                                           MAGNETIC TAPE CHANNEL
   .    CC002 TAPEINPUT      EQUALS    00004                                         TAPE UNIT FOR ORIGINAL TAPE
   .    CC003 TAPEOUTPUT     EQUALS    00010                                         TAPE UNIT FOR OUPLICATE TAPE

   .    CC004 BCWINPUT       EQUALS    115                                           INPUT BUFFER CONTROL AODRESS
   .    CC005 TAPEINTER      EQUALS    35                                            MAGNETIC TAPE EXTERNAL INTERRU
                                                                                     PT AODRESS
   .    CC006 RENEW          CL    B1                                  00000 12100 00000 CLEAR FILE COUNT
   .    CC007                PUT   W(RJPCHECK)*W(TAPEINTER)            00001 10030 00061 SET UP INTERRUPT ANSWERING
                                                                       00002 14030 00035
   .    CC01C ECFSTART       CL    L(RECORDS)                          00003 16010 00066 CLEAR RECORD COUNT
   .    CC011 START          IN    TAPE*W(BCWREAD)                     00004 73670 00020 READ IN NEXT RECORD OF ORIGINA
                                                                                     L TAPE
   .    CC012                NO-OP                                     00005 12000 00000
   .    CC013                EX-FCT     TAPE*W(READBINHO)              00006 13670 00062
   .    CC014                JP    $                                   00007 61000 00007 WAIT FOR INTERRUPT
   .    CC015                ENT   A*L(BCWINPUT)                       00010 11010 00115 NEXT WORD ADDRESS OF INPUT
   .    CC016                SUB   A*1                                 00011 21000 00001
   .    CC017                STR   A*U(BCWWRITE)                       00012 15020 00021 LWA OF OUTPUT
   .    CC020                EX-FCT     TAPE*W(WRITEBINHO)             00013 13670 00063
   .    CC021                RPL   Y+1*L(RECORDS)                      00014 36010 00066
   .    CC022                OUT   TAPE*W(BCWWRITE)                    00015 74670 00021 WRITE NEXT RECORD OF OUPLICATE
                                                                                      TAPE
   .    CC023                JP    $                                   00016 61000 00016 WAIT FOR INTERRUPT
   .    CC024                JP    START                               00017 61000 00004
   .    CC025 BCWREAD        77777      BUFFER                         00020 77777 00067 INPUT BUFFER CONTROL WORD
   .    CC026 BCWWRITE       0     BUFFER                              00021 00000 00067 OUTPUT BUFFER CONTROL WORD
   .    CC027 CHECK          ENTRY                                     00022 61000 00000
   .    CC03C                RPL   Y+1*L(CHECK)                        00023 36010 00022
   .    CC031                STR   TAPE*W(STATUS)                      00024 17670 00065
   .    CC032                ENT   A*U(STATUS)                         00025 11020 00065
   .    CC033                RSH   A*110                               00026 02000 00013
   .    CC034                ENT   B7*A                                00027 12770 00000
   .    CC035                RILJP      L(TABLE+B7)                    00030 60117 00041 GO TO APPROPRIATE STATUS ROUTI
                                                                                     NE
   .    CC036 NORMAL         EXIT                                      00031 61010 00022
   .    CC037 WEOF           EX-FCT     TAPE*W(EOFHD)                  00032 13670 00064 WRITE END OF FILE
   .    CC040                JP    $                                   00033 61000 00033 WAIT FOR INTERRUPT
   .    CC041                ENT   B2*L(RECORDS)                       00034 12210 00066 DISPLAY NUMBER OF RECORDS IN B
                                                                                     2
   .    CC042                ENT   B1*B1+1                             00035 12101 00001
   .    CC043                STR   B1*U(RECORDS)                       00036 16120 00066
   .    CC044                JP    EOFSTART                            00037 61000 00003
   .    CC045 STOP           JP    RENEW*STOP                          00040 61400 00000
   .    CC046 TABLE          00    STOP                                00041 00000 00040
   .    CC047                01    STOP                                00042 00001 00040
   .    CC05C                02    STOP                                00043 00002 00040
   .    CC051                03    STOP                                00044 00003 00040
   .    CC052                04    STOP                                00045 00004 00040
   .    CC053                05    STOP                                00046 00005 00040
   .    CC054                06    STOP                                00047 00006 00040
   .    CC055                07    STOP                                00050 00007 00040
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CARDS    L1 IC LABEL       TA STATEMENT                                LOC    F JKB Y      NOTES

     .    CC056             10   NORMAL                                 00051  00010 00031
     .    CC057             11   STOP                                   00052  00011 00040
     .    CC060             12   STOP                                   00053  00012 00040
     .    CC061             13   WEOF                                   00054  00013 00032
     .    CC062             14   STOP                                   00055  00014 00040
     .    CC063             15   STOP                                   00056  00015 00040
     .    CC064             16   STOP                                   00057  00016 00040
     .    CC065             17   STOP                                   00060  00017 00040
     .    CC066 RJPCHECK    RJP  CHECK                                  00061  65000 00022  RJP TO INTERRUPT ANSWERING ROU
                                                                                            TINE
     .    CC067 READBINHO   52000     TAPEINPUT                        00062  52000 00004  READ BINARY HO
     .    CC070 WRITEBINHO  12000     TAPEOUTPUT                       00063  12000 00010  WRITE BINARY HO
     .    CC071 EOFHO       12300     TAPEOUTPUT                       00064  12300 00010  WRITE END OF FILE HO
     .    CC072 STATUS      0                                          00065  00000 00000  MAGNETIC TAPE CHANNEL STATUS W
                                                                                            ORD
     .    CC073 RECORDS     0    0                                     00066  00000 00000  U = FILE COUNT, L = RECORD COU
                                                                                            NT
     .    CC074 BUFFER      RESERVE   20000                            00067  00000 00000
     .    CC075             RESERVE   1                                20067  00000 00000

END OF LISTING
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..... SPURT OUTPUT NO. 211 .....

TAPECOPY MATHIASEN*8/21/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
BCWINPUT	00115	BCWREAD	00020	BCWWRITE	00021
BUFFER	00067	CHECK	00022	EOFHD	00064
EOFSTART	00003	NORMAL	00031	READBINHD	00062
RECOROS	00066	RENEW	00000	RJPCHECK	00061
STOP	00040	START	00004	STATUS	00065
TABLE	00041	TAPEOUTPUT	00010	TAPEINPUT	00004
TAPEINTER	00035	WEOF	00032	WRITEBINHD	00063

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

TAPECOPY MATHIASEN*8/21/64

LABEL	LOC	LABEL	LOC	LABEL	LOC
RENEW	00000	EOFSTART	00003	TAPEINPUT	00004
START	00004	TAPEOUTPUT	00010	BCWREAO	00020
BCWWRITE	00021	CHECK	00022	NORMAL	00031
WEOF	00032	TAPEINTER	00035	STOP	00040
TABLE	00041	RJPCHECK	00061	REAOBINHO	00062
WRITEBINHO	00063	EOFHO	00064	STATUS	00065
RECOROS	00066	BUFFER	00067	BCWINPUT	00115

END OF LISTING

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                    ..........  SPURT OUTPUT NO. 210  ..........
                          UPDATER          HAFFORD*12*AUG*64

CARDS    L1 ID LABEL      TA STATEMENT                          LOC    F JKB Y      NOTES

   .     COCCO UPDATER       PROGRAM   HAFFORD*12*AUG*64
   .     COCC1 BEGIN         EQUALS    10000
   .     COCC2 BEGIN         PUT  W(JP)*W(35)                  10000  10030 63614
                                                               10001  1403C 00035
   .     COCC3               RJP  PRINT                        10002  65000 64151
   .     COCC4               100  REMINO                      10003  00012 636C1
   .     COCC5               RJP  PRINT                        10004  65000 64151  GO FINO WHICH PROGRAMS TO ERAS
                                                                                     E
   .     COCC6               6    ASKERASE                     10005  00006 63573
   .     COCC7               CL   B2                           10006  1220C 0C0C0
   .     COC1D               RJP  CRLFRT                       10007  65000 64114
   .     COC11 GETCHAR       1N   TYPE*W(BCWREPLY)             10010  7313C 64074  GET ONE LETIER INTO REPLY
   .     COC12               JP   $*TYPE*ACTIVEIN              10011  62100 10011
   .     COC13               ENT  A*W(REPLY)                   10012  11030 64075
   .     COC14               SUB  A*4*ANOT                     10013  21500 00004  CARRIAGE RETURN
   .     COC15               JP   NOMORERASE                   10014  61000 10031  JP IF IS STOP CODE
   .     COC16               ENT  A*W(REPLY)                   10015  11030 64075
   .     COC17               SUB  A*77*ANOT                    10016  21500 00077  ERASURE
   .     COC2D               COMMENT   HANOLE                                      AN ERASURE HERE
   .     COC21 ERASURE       BJP  B2*TYPEERASE                 10017  72200 10026  BACK UP LIST POINTER
   .     COC22               COMMENT   HANOLE                                      A STOP CODE OR A GOOD CHARACTE
                                                                                     R
   .     COC23 HNDLCHAR      ENT  A*W(REPLY)                   10020  11030 64075
   .     COC24               SUB  A*76*ANOT                    10021  21500 00076  SPECIAL CHARACTER
   .     COC25               JP   TYPEERASE                    10022  61000 10026  PRINT AND IGNORE
   .     COC26               COMMENT   SAVE                                        ONE CHARACTER
   .     COC27               PUT  W(REPLY)*W(BUF2+B2)          10023  10030 64075
                                                               10024  14032 63636
   .     COC30               BSK  B2*77777                     10025  71200 77777
   .     COC31 TYPEERASE     CUT  TYPE*W(BCWREPLY)             10026  74130 64074  TYPE SYMBOL
   .     COC32               JP   $*TYPE*ACTIVEOUT             10027  6310C 10027
   .     CUC33               JP   GETCHAR                      10030  61000 10010
   .     COC34               COMMENT   TAKE                                        ERASES FROM BUF2 TO ERASE FOR
                                                                                     SEARCH
   .     COC35               COMMENT   STARTS                                      WITH B2 SET TO 5N ENDS WITH BY
                                                                                      SET TO N
   .     COC36 NOMORERASE    CL   B4                           10031  12400 0C0C0
   .     COC37               RJP  CRLFRT                       10032  65000 64114
   .     COC40               JP   FIRSTERASE                   10033  61000 10043
   .     COC41 ANOTHERW      ENT  B1*4                         10034  1210C 0C0C4
   .     COC42 ANOTHERC      BJP  B2*ANOTHERC+1                10035  72200 10036
   .     COC43               ENT  A*W(BUF2+B2)                 10036  11032 63636
   .     COC44               RSH  AQ*6                         10037  03000 00006
   .     COC45               BJP  B1*ANOTHERC                  10040  7210C 10035
   .     COC46               STR  Q*W(ERASELIST+B4)            10041  14034 64076
   .     COC47               BSK  B4*77777                     10042  71400 77777
   .     COC5O FIRSTERASE    ENT  A*B2                         10043  11002 00000
   .     COC51               JP   ANOTHERW*ANOT                10044  6050C 10034
   .     COC52               ENT  A*B4                         10045  11004 00000
   .     CUC53               STR  A*L(MAYBERASE)               10046  15010 10154  SET RPT FOR SEARCH
   .     COC54               RJP  REWINOCORR                   10047  65000 63344
   .     COC55               CL   B2                           10050  1220C 0C0C0
   .     COC56               PUT  L(CORRECTAPE)*L(INTAPE)      10051  10010 63620  SET TO READ CORRECTION TAPE
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CARDS   LI IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

                                                                     10052  14010 63622
    .   C0C57               PUT  CSLISTED•L(MACHEOF)                 10053  10000 10073  GO TO (CSLISTED) ON AN EOF
                                                                     10054  14010 64611
    .   C0C60               STR  Q•L(IFEOF)                          10055  14010 646C0  A MACHINE ERROR SHOULD BE TREA
                                                                                         TED AS AN EOF WHEN
    .   C0C61               COMMENT   IT                                                 COMES IMMEDIATELY AFTER AN END
                                                                                          OF PROGRAM RECORD
    .   C0C62 LISTCHANGE    RJP  READTAPE                            10056  65000 644C2  READ A NINE WORD RECORD
    .   C0C63               U-TAG     BUF1+80•BUF1                   10057  63635 63625
    .   C0C64               CL   W(JUSTEOP)                          10060  16030 63616
    .   C0C65               ENT  A•W(BUF1)                           10061  11030 63625  CHECK FOR 74747
    .   C0C66               SUB  A•W(MSK321)•AZERO                   10062  21430 63623  $ SKIP IF IT IS
    .   C0C67               JP   CSLISTED                            10063  61000 10073  FOR NOW CONSIDER THIS THE END
                                                                                         OF TAPE
    .   C0C70               RJP  READTAPE                            10064  65000 644C2  GET SECOND RECORD
    .   C0C71               U-TAG     BUF2+55D•BUF2                  10065  63725 63636
    .   C0C72               PUT  W(BUF2+6)•W(CHANGELIST+B2)          10066  10030 63644  SAVE THE PROGRAM SYSTEM NAME
                                                                     10067  14032 63726
    .   C0C73               RJP  SKIP                                10070  65000 63331  SKIP THE REST OF THE PROGRAM

    .   C0C74               BSK  B2•144                              10071  71200 00144  INDEX CORRECTION COUNT BY ONE

    .   C0C75               JP   LISTCHANGE                          10072  61000 10056
    .   C0C76               COMMENT   GET                                                HERE FROM EOF OR PSEUDO EOF AF
                                                                                         TER THE NAMES OF ALL
    .   C0C77               COMMENT   PROGRAMS                                           ON THE CORRECTION TAPE HAVE BE
                                                                                         EN LISTED
    .   C0100               COMMENT   IN                                                 (CHANGELIST)
    .   C0101 CSLISTED      STR  B2•W(NUMBERNEW)                     10073  16230 64072  SAVE THE NUMBER OF CORRECTIONS

    .   C0102               STR  B2•L(FINDCHANGE)                    10074  16210 10123
    .   C0103               RJP  REWINDOLD                           10075  65000 63350
    .   C0104               RJP  REWINDCORR                          10076  65000 63344
    .   C0105               RJP  REWINDNEW                           10077  65000 63354
    .   C0106               PUT  EOFOLD•L(MACHEOF)                   10100  10000 10161  GO TO (EOFOLD) ON AN EOF
                                                                     10101  14010 64611
    .   C0107               STR  Q•L(IFEOF)                          10102  14010 646C0  GO TO (EOFOLD) ON A PSEUDO EOF

    .   C0110               COMMENT   THE                                                PROGRAM, FROM HERE TO EOFOLD,
                                                                                         COPIES EITHER THE
    .   C0111               COMMENT   PROGRAM                                            FROM THE OLD TAPE OR ITS REPLA
                                                                                         CEMENT FROM THE
    .   C0112               COMMENT   CORRECTION                                         TAPE TO THE NEW TAPE
    .   C0113 CKNEXTOLD     PUT  L(AULTAPE)•L(INTAPE)                10103  10010 63617  SET TO READ OLD TAPE
                                                                     10104  14010 63622
    .   C0114               JP   MOVEUN                              10105  61000 10107
    .   C0115 GOCOPY        RJP  COPY                                10106  65000 63415
    .   C0116 MOVEON        RJP  READTAPE                            10107  65000 644C2  READ A NINE WORD RECORD
    .   C0117               U-TAG     BUF1+80•BUF1                   10110  63635 63625
    .   C0120               CL   W(JUSTEOP)                          10111  16030 63616
    .   C0121               ENT  A•W(BUF1)                           10112  11030 63625  CHECK FOR 74747
    .   C0122               SUB  A•W(MSK321)•AZERO                   10113  21430 63623  AND SKIP IF IT IS
    .   C0123               JP   EOFOLD                              10114  61000 10161  NOT A 321 RECORD, END OF OLD T
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CARDS    L1 ID LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

                                                                                         APE FOR NOW
    .    C0124            RJP  READTAPE                              10115  65000 64402  GET SECOND RECORD
    .    C0125            U-TAG     BUF2+550•BUF2                    10116  63725 63636
    .    C0126            COMMENT   CHECK                                                PROGRAM NAME TO THE LIST OF CH
                                                                                         ANGES
    .    C0127            ENT  Q•W(BUF2+6)                           10117  10030 63644
    .    C0130            STR  Q•W(AULTNAME)                         10120  14030 64073
    .    C0131            STR  Q•A                                   10121  14040 00000
    .    C0132            SUB  A•W(I1)                               10122  21030 64111
    .    C0133 FINDCHANGE RPT  1000•BACK                             10123  70200 00144  BY THE TIME THIS INSTRUCTION I
                                                                                         S REACHED,
    .    C0134            COMMENT   THE                                                  L() CONTAINS THE NUMBER OF PRO
                                                                                         GRAMS TO CHANGE
    .    C0135            COM  AQ•W(CHANGELIST-1+B7)•YIN             10124  04437 63725
    .    C0136            JP   MAYBERASE                             10125  61000 10154
    .    C0137 REPLACE    CL   W(CHANGELIST+B7)                      10126  16037 63726  ZERO THE (CHANGELIST) ENTRY
    .    C0140            RJP  SKIP                                  10127  65000 63331  SKIP THE REST OF THE PROGRAM O
                                                                                         N THE OLD TAPE
    .    C0141            PUT  L(CORRECTAPE)•L(INTAPE)               10130  10010 63620  SET TO READ CORRECTION TAPE
                                                                     10131  14010 63622
    .    C0142            ENT  A•B7•ANOT                             10132  11507 00000
    .    C0143            JP   L15B                                  10133  61000 10140
    .    C0144            SUB  A•W(I1)                               10134  21030 64111
    .    C0145            ENT  B7•A                                  10135  12770 00000
    .    C0146 L15A       RJP  SKIP                                  10136  65000 63331  SKIP TO THE PROPER PROGRAM ON
                                                                                         THE CORRECTION TAPE
    .    C0147            BJP  B7•L15A                               10137  72700 10136
    .    C0150 L15B       RJP  READTAPE                              10140  65000 64402  READ A NINE WORD RECORD
    .    C0151            U-TAG     BUF1+8C•BUF1                     10141  63635 63625
    .    C0152            CL   W(JUSTEOP)                            10142  16030 63616
    .    C0153            RJP  READTAPE                              10143  65000 64402  READ THE SECOND RECORD
    .    C0154            U-TAG     BUF2+550•BUF2                    10144  63725 63636
    .    C0155            ENT  A•W(BUF2+6)                           10145  11030 63644  THIS SHOULD BE THE PROGRAM I M
                                                                                          LOOKING FOR
    .    C0156            SUB  A•W(AULTNAME)•AZERO                   10146  21430 64073
    .    C0157            JP   L15C•STOP                             10147  61400 10150
    .    C0160 L15C       RJP  COPY                                  10150  65000 63415  IT IS, COPY IT
    .    C0161            RJP  REWINDCORR                            10151  65000 63344  REWIND THE TAPE
    .    C0162            CL   W(JUSTEOP)                            10152  16030 63616
    .    C0163            JP   CKNEXTOLD                             10153  61000 10103
    .    C0164 MAYBERASE  RPT  100•BACK                              10154  70200 00012  THE 100 IS REPLACED BY THE PRO
                                                                                         PER VALUE
    .    C0165            COMMENT   EASIER                                               IN THE PROGRAM
    .    C0166            COM  AQ•W(ERASELIST-1+B7)•YIN              10155  04437 64075
    .    C0167            JP   GOCOPY                                10156  61000 10106
    .    C0170            RJP  SKIP                                  10157  65000 63331  SKIP THE PROGRAM TO BE ERASED

    .    C0171            JP   CKNEXTOLD                             10160  61000 10103  GO CHECK THE NEXT OLD PROGRAM

    .    C0172            COMMENT   REACH                                                THIS POINT WHEN THE END OF OLD
                                                                                          TAPE IS FOUND
    .    C0173 ECFOLC     RJP  REWINDOLD                             10161  65000 63350
    .    C0174            PUT  L(CORRECTAPE)•L(INTAPE)               10162  10010 63620  SET TO READ THE CORRECTION TAP
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CARDS    LI IO LABEL      TA STATEMENT                              LOC    F JKB Y      NOTES

                                                                                       E
                                                                   10163  14010 63622
    .    C0175              PUT  DONECORR•L(MACHEOF)               10164  10000 102C3  GO TO (DONECORR) ON AN EOF
                                                                   10165  14010 64611
    .    C0176              STR  Q•L(IFEOF)                        10166  14010 646C0  GO TO (DONECORR) ON A PSEUDO E
                                                                                       OF
    .    C0177              STR  Q•W(JUSTEOP)                      10167  14030 63616
    .    C02C0              ENT  A•W(NUMBERNEW)                    10170  11030 64072
    .    C02C1              SUB  A•W(I1)                           10171  21030 64111
    .    C02C2              STR  A•L(BSKIP3)                       10172  15010 102C1
    .    C02C3              CL   B2                                10173  12200 00000
    .    C02C4              COMMENT   SCAN                                            (CHANGELIST) AND COPY NON-ZERO
                                                                                       EO PROGRAMS TO NEW TAPE
    .    C02C5 FINISHCORR   ENT  A•W(CHANGELIST+B2)•ANOT           10174  11532 63726
    .    C02C6              JP   SKIPPED                           10175  61000 102C0
    .    C02C7              RJP  COPYOUT                           10176  65000 634C3  COPY THIS PROGRAM
    .    C0210              JP   BSKIP3                            10177  61000 102C1
    .    C0211 SKIPPED      RJP  SKIP                              10200  65000 63331  SKIP THIS PROGRAM
    .    C0212 BSKIP3       BSK  B2•0                              10201  71200 00000  1 FILL THIS IN FROM NUMBERNEW

    .    C0213              JP   FINISHCORR                        10202  61000 10174
    .    C0214 DONECORR     RJP  WEOFNEW                           10203  65000 63372
    .    C0215              RJP  REWINOCORR                        10204  65000 63344
    .    C0216              RJP  REWINDNEW                         10205  65000 63354
    .    C0217              JP   LISTAPES                          10206  61000 63466
    .    C0220              COMMENT   THIS                                            PROGRAM SKIPS TO THE END OF A
                                                                                       PROGRAM ON (INTAPE)
    .    C0221 SKIP         ENTRY                                  63331  61000 00000
    .    C0222              RJP  READTAPE                          63332  65000 644C2
    .    C0223              U-TAG     BUF2+550•BUF2                63333  63725 63636
    .    C0224              ENT  A•W(ENDOF)                        63334  11030 64112  CHECK FOR END-OF-PROGRAM RECOR
                                                                                       D
    .    C0225              ENT  Q•W(ENDOF+1)                      63335  10030 64113
    .    C0226              SUB  A•W(BUF2)•ANOT                    63336  21530 63636
    .    C0227              SUB  Q•W(BUF2+1)•QZERO                 63337  27430 63637
    .    C0230              JP   SKIP+1                            63340  61000 63332
    .    C0231              PUT  W(FULL)•W(JUSTEOP)                63341  10030 63615  SET (JUSTEOP)
                                                                   63342  14030 63616
    .    C0232              JP   L(SKIP)                           63343  61010 63331
    .    C0233 REWINDCORR   ENTRY                                  63344  61000 00000
    .    C0234              ENT  A•4                               63345  11000 00004
    .    C0235              RJP  REWIND                            63346  65000 63360
    .    C0236              JP   L(REWINDCORR)                     63347  61010 63344
    .    C0237 REWINDOLD    ENTRY                                  63350  61000 00000
    .    C0240              ENT  A•2                               63351  11000 00002
    .    C0241              RJP  REWIND                            63352  65000 63360
    .    C0242              JP   L(REWINDOLD)                      63353  61010 63350
    .    C0243 REWINDNEW    ENTRY                                  63354  61000 00000
    .    C0244              ENT  A•10                              63355  11000 00010
    .    C0245              RJP  REWIND                            63356  65000 63360
    .    C0246              JP   L(REWINDNEW)                      63357  61010 63354
    .    C0247              COMMENT   REWIND                                          THE TAPE DESCRIBED IN THE A RE
                                                                                       GISTER
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CAROS    L1 ID LABEL      TA STATEMENT                                LOC    F JK8 Y      NOTES

.     C0250 REWINC          ENTRY                                    63360  61000 00000
.     C0251                 STR  A*L(REWINOWHAT)                     63361  15010 63371
.     C0252                 PUT  REWINOR*L(35)                       63362  10000 63367
                                                                     63363  14010 00035
.     C0253                 RIL                                      63364  60000 00000
.     C0254                 EX-FCT    TAPE*W(REWINDWHAT)             63365  13670 63371  REWIND UNIT SPECIFIED IN A REG
                                                                                          ISTER
.     C0255                 JP   $                                   63366  61000 63366  WAIT FOR INTERUPT
.     C0256 REWINDR         STR  TAPE*W(STATUS)                      63367  17670 64635
.     C0257                 JP   L(REWIND)                           63370  61010 63360
.     C0260 REWINDWHAT      3C1CC     4                              63371  30100 00004
.     C0261 WEOFNEW         ENTRY                                    63372  6100C 00000
.     C0262                 PUT  WEOFNEWR*L(35)                      63373  10000 63400
                                                                     63374  14010 00035
.     C0263                 RIL                                      63375  60000 00000
.     C0264                 EX-FCT    TAPE*1230000010                63376  13670 65001
.     C0265                 JP   $                                   63377  61000 63377
.     C0266 WEOFNEWR        STR  TAPE*W(STATUS)                      63400  17670 64635
.     C0267                 ENT  A*U(STATUS)                         63401  11020 64635
.     C0270                 JP   L(WEOFNEW)                          63402  61010 63372
.     C0271                 COMMENT   SET                                                UP (INTAPE),(BUF1) AND(BUF2) A
                                                                                          NO HAVE (COPY), COPY A
.     C0272                 COMMENT   PROGRAM                                            FROM THE CORRECTION TAPE
.     C0273 COPYOUT         ENTRY                                    63403  61000 00000
.     C0274                 PUT  L(CORRECTAPE)*L(INTAPE)             63404  10010 63620
                                                                     63405  14010 63622
.     C0275                 RJP  READTAPE                            63406  65000 64402
.     C0276                 U-TAG     BUF1+8D*BUF1                   63407  63635 63625
.     C0277                 CL   W(JUSTEOP)                          63410  16030 63616
.     C030C                 RJP  READTAPE                            63411  65000 64402
.     C0301                 U-TAG     BUF2+55D*BUF2                  63412  63725 63636
.     C0302                 RJP  COPY                                63413  65000 63415
.     C0303                 JP   L(COPYOUT)                          63414  61010 63403
.     C0304                 COMMENT   GIVEN                                              A NINE WORD RECORD IN (BUF1),
                                                                                          A 56 WORD RECORD
.     C0305                 COMMENT   IN                                                 (BUF2) AND THE TAPE DESIGNATED
                                                                                           IN (INTAPE) POSITIONED
.     C0306                 COMMENT   TO                                                 THE POINT FOLLOWING THAT INFOR
                                                                                          MATION, WRITE THE
.     C0307                 COMMENT   WHOLE                                              PROGRAM ON THE NEW TAPE
.     C0310 COPY            ENTRY                                    63415  61000 00000
.     C0311                 RJP  WRITE                               63416  65000 64665
.     C0312                 U-TAG     BUF1+8D*BUF1                   63417  63635 63625
.     C0313 L14A            CL   A                                   63420  11000 00000  CHECK PARITY
.     C0314                 RPT  55D*ADV                             63421  70100 00067
.     C0315                 ADD  A*W(BUF2)                           63422  20030 63636
.     C0316                 SUB  A*W(BUF2+55D)*AZERO                 63423  2143C 63725
.     C0317                 JP   L140                                63424  6100C 63443  BAD PARITY IN 321 RECORD
.     C0320 L148            RJP  WRITE                               63425  6500C 64665
.     C0321                 U-TAG     BUF2+55D*BUF2                  63426  63725 63636
.     C0322                 RJP  READTAPE                            63427  65000 64402
.     C0323                 U-TAG     BUF2+55D*BUF2                  63430  63725 63636
.     C0324                 ENT  A*W(ENDOF)                          63431  11030 64112  CHECK FOR END-OF-PROGRAM RECOR
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                    ..........  SPURT OUTPUT NO. 210  ..........
                          UPDATER          HAFFORD•12•AUG•64

CARDS    L1 ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

                                                                                          0
    .    C0325            ENT  Q•W(ENDOF+1)                            63432  10030 64113
    .    C0326            SUB  A•W(BUF2)•ANOT                          63433  21530 63636
    .    C0327            SUB  Q•W(BUF2+1)•QZERO                       63434  27430 63637
    .    C0330            JP   L14A                                    63435  61000 63420  NOT END-OF-PROGRAM
    .    C0331            PUT  W(FULL)•W(JUSTEOP)                      63436  10030 63615
                                                                       63437  14030 63616
    .    C0332 L14C       RJP  WRITE                                   63440  65000 64665  WRITE LAST RECORD OUT
    .    C0333            U-TAG     BUF2+1•BUF2                        63441  63637 63636
    .    C0334            JP   L(COPY)                                 63442  61010 63415
    .    C0335 L14D       RJP  PRINT                                   63443  65000 64151
    .    C0336            8D   L14PR1                                  63444  00010 63450
    .    C0337            RJP  PRINT                                   63445  65000 64151
    .    C0340            6    L14PR2                                  63446  00006 63460
    .    C0341            JP   L14B•STOP                               63447  61400 63425
    .    C0342 L14PR1     FD   8D•FOUND A BAD 321 PARITY WHILE COP     63450  13243 22311
                          YING
                                                                       63451  05060 5D7C6
                                                                       63452  11056 36261
                                                                       63453  05250 62716
                                                                       63454  31360 53415
                                                                       63455  16211 20510
                                                                       63456  24253 61623
                                                                       63457  1405D 5C5C5
    .    C0343 L14PR2     FD   6•HIT START TO ACCEPT IT ANYWAY         63460  15163 1D530
                                                                       63461  31062 731C5
                                                                       63462  31240 5D610
                                                                       63463  10122 53105
                                                                       63464  16310 5D623
                                                                       63465  36340 636C5
    .    C0344 LISTAPES   RJP  PRINT                                   63466  65000 64151
    .    C0345            11D  LIST1PR                                 63467  00013 63536
    .    C0346 L19L       JP   L19Q•KEY1                               63470  61100 63524
    .    C0347            PUT  L(AOLTAPE)•L(INTAPE)                    63471  10010 63617  SET TO READ OLD TAPE
                                                                       63472  14010 63622
    .    C0350            PUT  L19Q•L(MACHEOF)                         63473  10000 63524  GO TO (L19Q) ON EOF
                                                                       63474  14010 64611
    .    C0351            STR  Q•L(IFEOF)                              63475  14010 646C0  GO TO (L19Q) ON PSEUDO EOF
    .    C0352            RJP  PRINT                                   63476  65000 64151
    .    C0353            4    LIST4PR                                 63477  00004 63551
    .    C0354 L19M       RJP  PRINT                                   63500  65000 64151
    .    C0355            7    LIST5PR                                 63501  00007 63555
    .    C0356            RJP  PRINT                                   63502  65000 64151
    .    C0357            3    LIST6PR                                 63503  00003 63564
    .    C0360 L19N       RJP  READTAPE                                63504  65000 64402  READ A NINE WORD RECORD
    .    C0361            U-TAG     BUF1+8C•BUF1+1                     63505  63635 63626
    .    C0362            CL   W(JUSTEOP)                              63506  16030 63616
    .    C0363            ENT  A•W(BUF1+1)                             63507  11030 63626
    .    C0364            SUB  A•W(MSK321)•AZERO                       63510  21430 63623
    .    C0365            JP   L(IFEOF)                                63511  61010 646C0  NON-74747, TREAT AS EOF
    .    C0366            RJP  READTAPE                                63512  65000 644C2  READ EIGHT WORDS FROM THE NEXT
                                                                                          RECORD
    .    C0367            U-TAG     BUF2+7•BUF2                        63513  63645 63636
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CARDS	L1 IO LABEL	TA	STATEMENT	LOC	F JKB Y	NOTES
.	C0370		PUT W(BUF2+6)•W(BUF1)	63514	10030 63644	PUT THE SYSTEM NAME WITH THE R
				63515	14030 63625	EST OF THE
.	C0371		PUT W(BLANK)•W(BUF1+1)	63516	10030 63613	INFORMATION AND PRINT OUT
				63517	14030 63626	
.	C0372		RJP PRINT	63520	65000 64151	
.	C0373		BO BUF1	63521	00010 63625	
.	C0374		RJP SKIP	63522	65000 63331	SKIP THE REST OF THE PROGRAM
.	C0375		JP L19N	63523	61000 63504	
.	C0376 L19Q		JP L19Z•KEY2	63524	61200 63535	
.	C0377		PUT L(NEWTAPE)•L(INTAPE)	63525	10010 63621	SET TO READ THE NEW TAPE
				63526	14010 63622	
.	C04C0		PUT L19Z•L(MACHEOF)	63527	10000 63535	GO TO (L19Z) ON EOF
				63530	14010 64611	
.	C04C1		STR Q•L(IFEOF)	63531	14010 64600	GO TO (L19Z) ON PSEUDO EOF
.	C04C2		RJP PRINT	63532	65000 64151	AND GO BACK INTO THE PRINT LOO
						P
.	C04C3		4 LIST7PR	63533	00004 63567	
.	C04C4		JP L19M	63534	61000 63500	
.	C04C5 L19Z		JP BEGIN•STOP	63535	61400 10000	
.	C04C6 LIST1PR		FD 110•KEY1 ON=NO LOG OLD, KEY2 ON=NO	63536	20123 66105	
			LOC NEW			
				63537	24234 42324	
				63540	05212 41405	
				63541	24211 15605	
				63542	20123 66205	
				63543	24234 42324	
				63544	05212 41405	
				63545	23123 40505	
				63546	05050 50505	
				63547	05050 50505	
				63550	05050 50505	
.	C04C7 LIST4PR		FD 4•LISTING OF OLD TAPE	63551	21163 03116	
				63552	23140 52413	
				63553	05242 11105	
				63554	31062 51205	
.	C0410 LIST5PR		FD 7•SYSTEM PROGRAM PROGRAMMER+DA	63555	30363 03112	
			TE			
				63556	22050 50525	
				63557	27241 42706	
				63560	22050 50505	
				63561	25272 41427	
				63562	06222 21227	
				63563	42110 63112	
.	C0411 LIST6PR		FD 3• NAME NAME	63564	05230 62212	
				63565	05050 50505	
				63566	23062 21205	
.	C0412 LIST7PR		FD 4•LISTING OF NEW TAPE	63567	21163 03116	
				63570	23140 52413	
				63571	05231 23405	
				63572	31062 51205	
.	C0413 ASKERASE		FD 6•LIST PROGRAMS TO BE ERASED	63573	21163 03105	
				63574	25272 41427	

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CARDS   L1 ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

                                                                       63575  06223 00531
                                                                       63576  24050 712C5
                                                                       63577  12270 63012
                                                                       63600  11050 505C5
    .   C0414 REMIND        FD   10C•DRIVE B OLD TAPE, C CORRECTION,   63601  11271 63312
                              O SCRATCH FOR NEW
                                                                       63602  05070 52421
                                                                       63603  11053 10625
                                                                       63604  12560 510C5
                                                                       63605  10242 72712
                                                                       63606  10311 62423
                                                                       63607  56051 10530
                                                                       63610  10270 63110
                                                                       63611  15051 32427
                                                                       63612  05231 234C5
    .   C0415 BLANK         FO   1•                                    63613  05050 505C5
    .   C0416 JF            JP                                         63614  61000 00000
    .   C0417 FULL          77777     77777                            63615  77777 77777
    .   C0420 JUSTECP       C                                          63616  00000 00000  THIS REGISTER IS ON JUST FOLLO
                                                                                           WING DISCOVERY OF AN
    .   C0421               COMMENT   END-OF-PROGRAM                                       RECORD SO A MACHINE ERROR STAT
                                                                                           US RETURN
    .   C0422               COMMENT   FROM                                                 A TAPE READ CAN BE RECOGNIZED
                                                                                           AS A PSEUDO END-OF-FILE
    .   C0423 ALLTAPE       C    2                                     63617  00000 00002
    .   C0424 CORRECTAPE    O    4                                     63620  00000 00004
    .   C0425 NEWTAPE       O    80                                    63621  00000 00010
    .   C0426 INTAPE        52000     00001                            63622  52000 00001
    .   C0427 MSK321        74747     00321                            63623  74747 00321
    .   C0430 MSK1          U-TAG     BUF2+550•BUF2+1                  63624  63725 63637
    .   C0431 BUF1          RESERVE   90                               63625  00000 00000
    .   C0432 BUF2          RESERVE   560                              63636  00000 00000
    .   C0433 CHANGELIST    RESERVE   1000                             63726  00000 00000  LIST OF PROGRAM NAMES FROM CHA
                                                                                           NGE TAPE
    .   C0434 NUMBERNEW     C                                          64072  00000 00000  NUMBER OF NAMES IN CHANGELIST

    .   C0435 ALLNAME       C                                          64073  00000 00000
    .   C0436 BCWREPLY      U-TAG     REPLY•REPLY                      64074  64075 64075
    .   C0437 REPLY         C    0                                     64075  00000 00000
    .   C0440 ERASELIST     RESERVE   110                              64076  00000 00000
    .   C0441 11            C    1                                     64111  00000 00001
    .   C0442 ENDOF         FD   2•ENDOFDUMP                           64112  12231 12413
                                                                       64113  11322 225C5
    .   C0443 TYPE          MEANS     C2                                                 TYPEWRITER KEYBOARD
    .   C0444 TAPE          MEANS     C15                                                MAGNETIC TAPES
    .   C0445 CRLFRT        ENTRY                                      64114  61000 00000
    .   C0446               RIL                                        64115  60000 00000
    .   C0447               OUT  TYPE•W(BCWCRLF)•MONITOR               64116  76130 64123
    .   C0450               PUT  W(JPCRLF)•W(62)                       64117  10030 64124
                                                                       64120  14030 00062
    .   C0451               JP   $                                     64121  61000 64121
    .   C0452 CRLF          EXIT                                       64122  61010 64114
    .   C0453 BCWCRLF       U-TAG     CRLFCODE+2•CRLFCODE              64123  64127 64125
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CARDS   L1 ID LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

   .    C0454 JPCRLF        RILJP     CRLF                            64124  60100 64122
   .    C0455 CRLFCODE      C     4                                   64125  00000 00004
   .    C0456               C     3                                   64126  00000 00003
   .    C0457               C     3                                   64127  00000 00003
   .    C0460 STOREXRS      ENTRY                                     64130  61000 00000  STORE INDEX REGISTERS  B2-B6

   .    C0461               STR   B2*U(UB2LB3)                        64131  16220 64146
   .    C0462               STR   B3*L(UB2LB3)                        64132  16310 64146
   .    C0463               STR   B4*U(UB4LB5)                        64133  16420 64147
   .    C0464               STR   B5*L(UB4LB5)                        64134  16510 64147
   .    C0465               STR   B6*U(UB6)                           64135  16620 64150
   .    C0466               RILJP     L(STOREXRS)                     64136  60110 64130
   .    C0467 ENTERXRS      ENTRY                                     64137  61000 00000  RESTORE INDEX REGISTERS B2-B6

   .    C047C               ENT   B2*U(UB2LB3)                        64140  12220 64146
   .    C0471               ENT   B3*L(UB2LB3)                        64141  12310 64146
   .    C0472               ENT   B4*U(UB4LB5)                        64142  12420 64147
   .    C0473               ENT   B5*L(UB4LB5)                        64143  12510 64147
   .    C0474               ENT   B6*U(UB6)                           64144  12620 64150
   .    C0475               EXIT                                      64145  61010 64137
   .    C0476 UB2LB3        C     0                                   64146  00000 00000
   .    C0477 UB4LB5        C     0                                   64147  00000 00000
   .    C05C0 UB6           C     0                                   64150  0000C 00000
   .    C05C1 PRINT         ENTRY                                     64151  61000 00000  PRINT ON CONSOLE TYPEWRITER
   .    C05C2               RJP   STOREXRS                            64152  65000 64130
   .    C05C3               PUT   W(JPPRINTOVR)*W(62)                 64153  10030 64201
                                                                      64154  14030 00062
   .    C05C4               PUT   L(PRINT)*L(SETUP)                   64155  10010 64151
                                                                      64156  14010 64157
   .    C05C5 SETUP         PUT   W(0)*W(UNPACKCODE)                  64157  10030 00000
                                                                      64160  14030 64164
   .    C05C6               RPL   Y+1*L(PRINT)                        64161  36010 64151  INDEX RETURN POINT
   .    C05C7               ENT   A*BUFFERPRNT+2                      64162  11000 642C5
   .    C0510               RJP   UNPACK                              64163  65000 64351  UNPACK FIELDATA TEXT
   .    C0511 UNPACKCODE    C     0                                   64164  0000C 00000
   .    C0512               ENT   Q*U(UNPACKCODE)                     64165  10020 64164  COUNT OF WORDS
   .    C0513               MUL   5                                   64166  22000 00005  COUNT OF CHARACTERS
   .    C0514               ADD   Q*BUFFERPRNT+1                      64167  26000 642C4
   .    C0515               STR   Q*A                                 64170  14040 00000  LWA OF UNPACKED TEXT
   .    C0516               LSH   A*150                               64171  06000 00017
   .    C0517 CHGADR        SEL   SET*BUFFERPRNT                      64172  50000 642C3
   .    C052C               STR   A*W(PRINTBUFFC)                     64173  15030 642C2
   .    C0521               OUT   TYPE*W(PRINTBUFFC)*MONITOR          64174  7613C 642C2
   .    C0522               RIL                                       64175  60000 00000
   .    C0523 WAITPRINT     JP    WAITPRINT                           64176  61000 64176
   .    C0524 PRINTOVER     RJP   ENTERXRS                            64177  65000 64137
   .    C0525               RILJP     L(PRINT)                        64200  60110 64151
   .    C0526 JPPRINTOVR    RILJP     PRINTOVER                       64201  60100 64177
   .    C0527 PRINTBUFFC    C     0                                   64202  0000C 00000  BUFFER CONTROL FOR PRINTING
   .    C0530 BUFFERPRNT    C     04                                  64203  00000 00004  CARRIAGE RETURN
   .    C0531               C     03                                  64204  0000C 00003  LINE FEED
   .    C0532               RESERVE   1000                            64205  0000C 00000
   .    C0533 UNPACK        ENTRY                                     64351  61000 00000  UNPACK 1 CHARACTER TO WORD
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CAROS    L1 IO LABEL      TA STATEMENT                                LOC    F JKB Y      NOTES

   .     C0534              STR  A*LISTOREUNPAK)                      64352  15010 64373  FWA OF UNPACKED TABLE
   .     C0535              PUT  LIUNPACK)*LIPUTCOUNTER)              64353  10010 64351
                                                                      64354  14010 64355
   .     C0536 PUTCOUNTER   PUT  WIO)*WICOUNTER)                      64355  10030 00000
                                                                      64356  14030 64401
   .     C0537              RPL  Y+1*L(UNPACK)                        64357  36010 64351  INDEX RETURN POINT
   .     C0540              CL   B3*                                  64360  12300 00000  CLEAR WORD COUNTER
   .     C0541              PUT  LICOUNTER)*LIGETPACK)                64361  10010 64401  FWA OF PACKED TABLE
                                                                      64362  14010 64370
   .     C0542              ENT  A*UICOUNTER)                         64363  11020 64401  WORD COUNT
   .     C0543              SUB  A*1                                  64364  21000 00001  WORD COUNT - 1
   .     C0544              STR  A*LILOOPLIMIT)                       64365  15010 64376
   .     C0545              CL   B4*                                  64366  12400 00000  CLEAR CHARACTER COUNTER
   .     C0546 LOOPSTART    ENT  B5*4                                 64367  12500 00004  SET TO LOOP 5 TIMES
   .     C0547 GETPACK      ENT  Q*WIB3)                              64370  10033 00000  PACKED WORD
   .     C0550 LOOP1        CL   A*                                   64371  11000 00000  CLEAR ACCUMULATOR
   .     C0551              LSH  AQ*6                                 64372  07000 00006  NEXT CHARACTER OF PACKED WORD

   .     C0552 STOREUNPAK   STR  A*LIB4)                              64373  15014 00000  STORE IN UNPACK TABLE
   .     C0553              BSK  B4*77777                             64374  71400 77777  INDEX UNPACK TABLE
   .     C0554              BJP  B5*LOOP1                             64375  72500 64371  FINISHED THIS WORD...
   .     C0555 LOOPLIMIT    BSK  B3*0                                 64376  71300 00000  YES. FINISHED ALL WORDS...
   .     C0556              JP   LOOPSTART                            64377  61000 64367  NO.
   .     C0557              EXIT                                      64400  61010 64351  YES.
   .     C0560 COUNTER      C    0                                    64401  00000 00000  0
   .     C0561 READTAPE     ENTRY                                     64402  61000 00000  READ SPURT 210 TAPE
   .     C0562              RJP  STOREXRS                             64403  65000 64130
   .     C0563              PUT  LIREADTAPE)*LIINBUFFER)              64404  10010 64402
                                                                      64405  14010 64410
   .     C0564              RPL  Y+1*L(READTAPE)                      64406  36010 64402  INDEX RETURN POINT
   .     C0565              CL   B2*                                  64407  12200 00000
   .     C0566 INBUFFER     IN   TAPE*W(0)                            64410  73670 00000  ESTABLISH INPUT BUFFER
   .     C0567              PUT  WIJPC15EXT)*WI35)                    64411  10030 64512
                                                                      64412  14030 00035
   .     C057C              EX-FCT    TAPE*WIINTAPE)                  64413  13670 63622  BINARY-HD TAPE ON UNIT 2 OR 3

   .     C0571 WAIT1        JP   WAIT1                                64414  61000 64414  WAIT FOR INTERRUPT
   .     C0572 C15EXTINT    STR  TAPE*WISTATUS)                       64415  17670 64635  STATUS WORD
   .     C0573              ENT  A*UISTATUS)                          64416  11020 64635
   .     C0574              RSH  A*110                                64417  02000 00013
   .     C0575              ADD  A*STATUSCODE                         64420  20000 64451
   .     C0576              STR  A*LIINTERJUMP)                       64421  15010 64423
   .     C0577              RIL                                       64422  60000 00000
   .     C06CC INTERJUMP    JP   LIC)                                 64423  61010 00000  GO TO APPROPRIATE STATUS ROUTI
                                                                                          NE
   .     C06C1 BACK         RJP  ENTERXRS                             64424  65000 64137
   .     C06C2              EXIT                                      64425  61010 64402
   .     C06C3 INTERLOCK    PUT  W(UNITNOINT)*W(LOCKP)                64426  10030 64446  INTERLOCK ROUTINE
                                                                      64427  14030 64441
   .     C06C4              RJP  PRINT                                64430  65000 64151  PRINT INTERLOCK MESSAGE
   .     C06C5              110  INTERLOCKP                           64431  00013 64433
   .     C06C6              JP   INBUFFER*STOP                        64432  61400 64410
   .     C06C7 INTERLOCKP   FD   6*THERE IS AN INTERLOCK ON UNIT       64433  31151 22712
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CARDS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
						64434	05163	00506		
						64435	23051	62331		
						64436	12272	12410		
						64437	20052	42305		
						64440	32231	63105		
.	C061C		LCCKP	FO	5•C. CORRECT AND START.	64441	10750	50510		
						64442	24272	71210		
						64443	31050	62311		
						64444	05303	10627		
						64445	31750	50505		
.	C0611		UNITNCINT	FO	1•B.	64446	07750	50505		
.	C0612			FO	1•C.	64447	10750	50505		
.	C0613			FO	1•D.	64450	11750	50505		
.	C0614		STATUSCODE	CO	MACHERR	64451	00000	64602		NOT USED
.	C0615			C4	MACHERR	64452	00004	64602		NOT USED
.	C0616			10	MACHERR	64453	00010	64602		NOT USED
.	C0617			14	MACHERR	64454	00014	64602		NOT USED
.	C062C			20	MACHERR	64455	00020	64602		CHARACTER SYNC SEQUENCE ERROR
.	C0621			24	INBUFFER	64456	00024	64410		REWINDING
.	C0622			30	MACHERR	64457	00030	64602		CHAR SYNC CHAR COUNT ERROR
.	C0623			34	MACHERR	64460	00034	64602		FUNCTION WORD ERROR
.	C0624			40	BACK	64461	00040	64424		NORMAL COMPLETION
.	C0625			44	PARITY	64462	00044	64513		PARITY ERROR
.	C0626			50	MACHERR	64463	00050	64602		CONTROL UNIT SEQUENCE ERROR
.	C0627			54	WRITEEOF	64464	00054	64577		END OF FILE
.	C0630			60	INPUTAPEND	64465	00060	64636		END OF TAPE
.	C0631			64	MACHERR	64466	00064	64602		NOT USED
.	C0632			70	MACHERR	64467	00070	64602		ABNORMAL FRAME COUNT
.	C0633			74	INTERLOCK	64470	00074	64426		INTERLOCK FAULT
.	C0634		MACHFAULT	FO	10D•A MACHINE FAULT HAS OCCURRED ON MAGNETIC TAPE UNIT	64471	06052	20610		
						64472	15162	31205		
						64473	13063	22131		
						64474	0515C	63005		
						64475	24101	03227		
						64476	27121	10524		
						64477	23052	20614		
						64500	23123	11610		
						64501	05310	62512		
						64502	05322	31631		
.	C0635		UNITNC	FO	5•C . THE STATUS CODE IS	64503	10057	50505		
						64504	31151	20530		
						64505	31063	13230		
						64506	05102	41112		
						64507	05163	00505		
.	C0636		FCSTATCODE	FO	2•	64510	0505C	50505		
						64511	05050	50505		
.	C0637		JFC15EXT	RILJP	C15EXTINT	64512	60100	64415		
.	C064C		PARITY	BSK	B2•90	64513	7120C	00011		PARITY ROUTINE HAVE WE READ IO
										.....
.	C0641			JP	TRYAGAIN	64514	61000	64530		NO. READ RECORD AGAIN
.	C0642			ENT	A•L(INTAPE)	64515	11010	63622		
.	C0643			RSH	A•2	64516	02000	00002		

CARDS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C0644				ENT 81•A	64517	12170	00000		
.	C0645				ENT A•W(UNITNOINT+81)	64520	11031	64446		
.	C0646				STR A•W(PMSG)	64521	15030	64550		
.	C0647				RJP PRINT	64522	65000	64151		PRINT PARITY MESSAGE
.	C0650				11D PARITYMSG	64523	00013	64536		
.	C0651				BSK B6•500	64524	71600	00062		
.	C0652				BSK B6•510	64525	71600	00063		
.	C0653				EXIT	64526	61010	64402		NORMAL EXIT
.	C0654		RETRY		20300 00004	64527	20300	00004		
.	C0655		TRYAGAIN		PUT L(INTAPE)•L(RETRY)	64530	10010	63622		
						64531	14010	64527		
.	C0656				EX-FCT TAPE•W(RETRY)	64532	13670	64527		BACKSPACE REC WITHOUT INTERRUP T
.	C0657				RPT 77777	64533	70000	77777		
.	C0660				NO-OP	64534	12000	00000		
.	C0661				JP INBUFFER	64535	61000	64410		READ RECORD AGAIN
.	C0662		PARITYMSG		FC 100•A PARITY OCCURRED 10 TIMES ON M AGNETIC TAPE UNIT	64536	06052	50627		
						64537	16313	60524		
						64540	10103	22727		
						64541	12110	56124		
						64542	05311	62212		
						64543	30052	42305		
						64544	22061	42312		
						64545	31161	00531		
						64546	06251	20532		
						64547	23163	10505		
.	C0663		PMSG		FC 1•C.	64550	10750	50505		
.	C0664		TAPEPARMSG		RESERVE 11D	64551	00000	00000		BCD PARITY MESSAGE
.	C0665		FCTAPEPAR		FC 100•A PARITY OCCURRED ON INPUT TAPE IN FOLLOWING LI	64564	06052	50627		
						64565	16313	60524		
						64566	10103	22727		
						64567	12110	52423		
						64570	05162	32532		
						64571	31053	10625		
						64572	12051	62305		
						64573	13242	12124		
						64574	34162	31405		
						64575	21160	50505		
.	C0666				FC 1•NE.	64576	23127	50505		
.	C0667		WRITEECF		RJP ENTERXRS	64577	65000	64137		
.	C0670		IFEOF		JP EOFOLD	64600	61000	10161		
.	C0671		UNIT21C		FC 1• C.	64601	05107	50505		
.	C0672		MACHERR		ENT A•L(INTAPE)	64602	11010	63622		
.	C0673				RSH A•2	64603	02000	00002		
.	C0674				ENT 81•A	64604	12170	00000		
.	C0675				ENT A•W(UNITNOINT+81)	64605	11031	64446		
.	C0676				STR A•W(UNITNO)	64606	15030	64503		
.	C0677				RJP ENTERXRS	64607	65000	64137		
.	C0700				ENT A•W(JUSTEOP)•AZERO	64610	11430	63616		
.	C0701		MACHECF		JP CSLISTED	64611	61000	10073		
.	C0702		MACHERROR		RJP PRINT	64612	65000	64151		

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CAROS    L1 IO LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

.        CU7C3             110  MACHFAULT                              64613  00013 64471
.        C07C4             RJP  ENTERXRS                               64614  65000 64137
.        C07C5             JP   L(READTAPE)•STOP                       64615  61410 64402
.        C07C6 KCCTTCFC    ENTRY                                       64616  61000 00000
.        C07C7             CL   A•                                     64617  11000 00000
.        C0710             LSH  AQ•3                                   64620  07000 00003
.        C0711             LSH  A•3                                    64621  06000 00003
.        C0712             LSH  AQ•3                                   64622  07000 00003
.        C0713             LSH  A•3                                    64623  06000 00003
.        C0714             LSH  AQ•3                                   64624  07000 00003
.        C0715             LSH  A•3                                    64625  06000 00003
.        C0716             LSH  AQ•3                                   64626  07000 00003
.        CU717             LSH  A•3                                    64627  06000 00003
.        C0720             LSH  AQ•3                                   64630  07000 00003
.        C0721             NO-OP                                       64631  12000 00000
.        C0722 DUMMY       ADD  A•W(EXCESS60)                          64632  20030 64634
.        C0723             EXIT                                        64633  61010 64616
.        C0724 EXCESS6C    60606      06060                            64634  60606 06060
.        C0725 STATUS      C    0                                      64635  00000 00000
.        C0726 INPUTAPEND  ENT  A•L(INTAPE)                            64636  11010 63622
.        C0727             RSH  A•2                                    64637  02000 00002
.        C0730             ENT  B1•A                                   64640  12170 00000
.        CU731             ENT  A•W(UNITNOINT+B1)                      64641  11031 64446
.        CU732             STR  A•U(ENOTAPLM)                          64642  15020 64657
.        CU733             RJP  PRINT                                  64643  65000 64151  PRINT END-OF-TAPE MESSAGE
.        C0734             13D  ENDOFTAPM                              64644  00015 64650
.        C0735             RJP  ENTERXRS                               64645  65000 64137
.        C0736             JP   EOFOLO                                 64646  61000 10161
.        C0737             EXIT STOP                                   64647  61410 64616
.        C0740 ENDOFTAPM   FO   7•AN END OF TAPE HAS OCCURRED ON UN     64650  06230 51223
                           IT
                                                                       64651  11052 41305
                                                                       64652  31062 51205
                                                                       64653  15063 00524
                                                                       64654  10103 22727
                                                                       64655  12110 52423
                                                                       64656  05322 31631
.        C0741 ENDTAPEM    FO   6•  . HANG NEW TAPE AND START.         64657  05057 50515
                                                                       64660  06231 40523
                                                                       64661  12340 53106
                                                                       64662  25120 50623
                                                                       64663  11053 03106
                                                                       64664  27317 50505
.        C0742 WRITE       ENTRY                                       64665  61000 00000  WRITE + WAIT FOR 1 RECORD
.        C0743             PUT  W(ENTRANCE)•W(35)                      64666  10030 64777
                                                                       64667  14030 00035
.        C0744             PUT  L(WRITE)•L(WRITEOUT)                   64670  10010 64665  PICK UP BUFFER CONTROL WORD
                                                                       64671  14010 64675
.        C0745             RPL  Y+1•L(WRITE)                           64672  36010 64665  SET FOR NORMAL RJP +2
.        C0746 FCREWIND    EX-FCT     C15•120000001U                   64673  13670 65002
.        C0747             RIL                                         64674  60000 00000
.        C075C WRITECUT    CUT  C15•W(0)                               64675  74670 00000
.        C0751 HERE        JP   HERE                                   64676  61000 64676  WAIT FOR INTERRUPT
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CARDS    L1 IO LABEL      TA STATEMENT                                  LOC    F JKB Y      NOTES

   .     C0752 INTERRUPT     STR  C15*W(CHANNEL)                       64677  17670 64733
   .     C0753               ENT  A*U(CHANNEL)                         64700  11020 64733  PICK UP STATUS WORD
   .     C0754               RSH  A*110                                64701  02000 00013
   .     C0755               ADD  A*STATCODE                           64702  20000 64734  LOCATION OF TABLE OF JUMPS
   .     C0756               STR  A*L(INTJUMP)                         64703  15010 64704
   .     C0757 INTJUMP       JP   L(0)                                 64704  61010 00000  JUMP CONTROLLING S.R.
   .     C0760 BADMCH        PUT  U(MYSERVO)*U(UNITNO)                 64705  10020 64754  MACHINE ERROR OR NOT USED
                                                                       64706  14020 64503
   .     C0761               JP   MACHERROR                            64707  61000 64612  ART S ROUTINE
   .     C0762 REDUNDANT     PUT  L2DA*L(35)                           64710  10000 64714
                                                                       64711  14010 00035
   .     C0763               EX-FCT    C15*3030000010                  64712  13670 65003
   .     C0764               JP   $                                    64713  61000 64713
   .     C0765 L2DA          STR  C15*W(CHANNEL)                       64714  17670 64733
   .     C0766               PUT  INTERRUPT*L(35)                      64715  10000 64677
                                                                       64716  14010 00035
   .     C0767               EX-FCT    C15*1030000010                  64717  13670 65004
   .     C0770               JP   WRITEOUT                             64720  61000 64675
   .     C0771 ENDTAPE       EX-FCT    C15*023000C010                  64721  13670 65005  WRITE E O F HD
   .     C0772               RPT  77777                                64722  70000 77777
   .     C0773               NO-OP                                     64723  12000 00000
   .     C0774               EX-FCT    C15*2110000010                  64724  13670 65006  REW W/ INTLCK
   .     C0775               RJP  PRINT                                64725  65000 64151
   .     C0776               BD   NEWTAPEPR                            64726  00010 64755
   .     C0777               EXIT STOP                                 64727  61410 64665
   .     C1CCC INTERLCK      RJP  PRINT                                64730  65000 64151
   .     C1CC1               IDD  WAKEUP                               64731  00012 64765
   .     C1CC2               JP   WRITEOUT*STOP                        64732  61400 64675
   .     C1CC3 CHANNEL       C    0                                    64733  00000 00000
   .     C1CC4 STATCODE      CD   BADMCH                               64734  00000 64705  0  NOT USED
   .     C1CC5               C4   BADMCH                               64735  00004 64705  1  OD
   .     C1CC6               1D   BADMCH                               64736  00010 64705  2  OD
   .     C1CC7               14   BADMCH                               64737  00014 64705  3  OD
   .     C1C10               2D   BADMCH                               64740  00020 64705  4  CHAR SYNC SEQUENCE ERRD
   .     C1C11               24   FOREWIND                             64741  00024 64673
   .     C1C12               3D   BADMCH                               64742  00030 64705  6  CHAR COUNT ERROR
   .     C1C13               34   BADMCH                               64743  00034 64705  7  FUNCTION WORD ERROR
   .     C1C14               EXIT                                      64744  61010 64665  10 NORMAL COMPLETION
   .     C1C15               44   REDUNDANT                            64745  00044 64710  11 PARITY
   .     C1C16               5D   BADMCH                               64746  00050 64705  12 CONTROL UNIT SEQUENCE ERROR

   .     C1C17               54   BADMCH                               64747  00054 64705  13 END OF FILE
   .     C1C2D               6D   ENDTAPE                             64750  00060 64721  14 END OF TAPE
   .     C1C21               64   BADMCH                               64751  00064 64705  15 NOT USED
   .     C1C22               7D   BADMCH                               64752  00070 64705  16 ABNORMAL FRAME COUNT
   .     C1C23               74   INTERLCK                             64753  00074 64730  17 INTERLOCK
   .     C1C24 MYSERVO       FD   1*D.                                 64754  11750 5D5D5
   .     C1C25 NEWTAPEPR     FD   BD*MOUNT ANOTHER OUTPUT TAPE AND RE  64755  22243 22331
                             SUME
                                                                       64756  05062 32431
                                                                       64757  15122 7D524
                                                                       64760  32312 53231
                                                                       64761  05310 62512
```

CARDS	L1	ID LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
					64762	05062	31105		
					64763	27123	03222		
					64764	12050	50505		
.		C1026 WAKEUP	FD	100•INTERLOCK FAULT ON OUTPUT TAPE.	64765	16233	11227		
				..REMEDY AND RESUME					
					64766	21241	02005		
					64767	13063	22131		
					64770	05242	30524		
					64771	32312	53231		
					64772	05310	62512		
					64773	75757	52712		
					64774	22121	13605		
					64775	06231	10527		
					64776	12303	22212		
.		C1C27 ENTRANCE	RILJP	INTERRUPT	64777	60100	64677		
.		C1C30	NO-OP		65000	12000	00000		DUMMY
					65001	12300	00010		
					65002	12000	00010		
					65003	30300	00010		
					65004	10300	00010		
					65005	02300	00010		
					65006	21100	00010		

END OF LISTING

..... SPURT OUTPUT NO. 211 .....

UPDATER HAFFORD*12*AUG*64

LABEL	LOC	LABEL	LOC	LABEL	LOC
A$$$$$1111	65001	A$$$$$1112	65002	A$$$$$1113	65003
A$$$$$1114	65004	A$$$$$1115	65005	A$$$$$1116	65006
ACQAZIM	63071	ACQELEV	63075	ACQUI	63427
ACTUALTIME	63142	ADSCN	63416	AESCN	63417
ALNGOFFSET	63517	ANOTHERC	10035	ANOTHERW	10034
ARCOFAZIM	63524	ARCOFDEC	63526	ARCOFELEV	63522
ARCOFRA	63530	ASKERASE	63573	ASTRODEC	63106
ASTRORA	63105	AULTAPE	63617	AULTNAME	64073
AUPEREQUAT	63341	AZELOTIME	63532	AZELBXSCAN	63500
AZIM	63053	AZIMOFFSET	63512	AZIMOUT	64000
AZIMOVER	63325	AZIMADD	63442	AZIMIN	75000
AZMTHSCAN	63501	BODYSIZE	63462	BACK	64424
BADMCH	64705	BCWCRLF	64123	BCWREPLY	64074
BEGIN	10000	BLANK	63613	BLASTOFF	63146
BSKIP3	10201	BUF1	63625	BUF2	63636
BUFFERPRNT	64203	COCON	63414	CONVERTIME	63135
COPY	63415	COPYOUT	63403	CORCT	63420
CORRECTAPE	63620	COSORIENT	63065	CDSAZEL	63070
COUNTER	64401	C15EXTINT	64415	CAZIM	63060
CELBODY	63113	CELCOMPGM	63424	CELEV	63061
CELTIME	63133	CHANGELIST	63726	CHANNEL	64733
CHCOR	63422	CHGADR	64172	CHPAR	63431
CKNEXTOLD	10103	CRANGE	63057	CRLF	64122
CRLFCODE	64125	CRLFRT	64114	CRSSOFFSET	63516
CSLISTEC	10073	DONECORR	10203	DOPPOUT	66000
DCPPADD	63444	DATANALYZE	63425	DAY	63150
DEC	63003	DECOFFSET	63515	DECDOT	63010
DECLINSCAN	63505	DELTATEE	63316	DSECONDS	63141
DUMMY	64632	DUMSECTTG	63154	DYOMP	63421
ECFOLD	10161	ELEV	63054	ELEVOFFSET	63513
ELEVOUT	65000	ELEVADD	63443	ELEVIN	76000
ELVTNSCAN	63502	ENDOF	64112	ENDOFTAPM	64650
ENDTAPE	64721	ENDTAPEM	64657	ENTERXRS	64137
ENTRANCE	64777	EQUATOR	63323	ERASELIST	64076
ERASURE	10017	ESTSHIFTED	63143	EXCESS60	64634
EXPNAME	63350	FOREWINO	64673	FDSTATCODE	64510
FDTAPEPAR	64564	FINDCHANGE	10123	FINISHCORR	10174
FIRSTELEV	63104	FIRSTERASE	10043	FIRSTHRU	63153
FLATTENING	63337	FRAMESIZE	63101	FREQUENCY	63317
FULL	63615	GOCOPY	10106	GEOCENLAT	63322
GEOCETLAT	63321	GETCHAR	10010	GETPACK	64370
GMTMODU24	63145	GMTSHIFTED	63144	HOLDNOHOLD	63511
HOURMINUTE	63137	HOURREG	63151	HEIGHT	63326
HERE	64676	HNDLCHAR	10020	I1	64111
ID1CRADIO	66777	ID11RADIO	67776	ID12RADIO	67777
ID13RADIO	70775	ID14RADIO	70776	ID15RADIO	71776
ID16RADIO	71777	ID17RADIO	72776	ID18RADIO	72777
ID19RADIO	73776	ID1CELCOR	63000	ID1ENTPNT	63410
ID1RADCOR	63050	ID1RADIO	63440	ID1RECRD	63210
ID1SYSENT	77576	ID1SYSNAM	77676	ID1SYSPAR	63310
ID1TIME	63130	ID20RADIO	73777	ID21RADIO	74776

..... SPURT OUTPUT NO. 211 .....

UPDATER HAFFORD*12*AUG*64

LABEL	LOC	LABEL	LOC	LABEL	LOC
IC22RADIO	74777	ID23RADIO	75776	ID24RADIO	75777
IC25RADIO	76775	ID26RADIO	76776	ID2CELCOR	63001
IC2ENTPNT	63411	ID2RADCOR	63051	ID2RADIO	63441
ID2RECRC	63211	IO2SYSENT	77577	ID2SYSNAM	77677
IC2SYSPAR	63311	IO2TIME	63131	ID3RADIO	63776
ID4RADIO	63777	ID5RADIO	64776	ID6RADIO	64777
IC7RADIC	65776	IDBRADIO	65777	ID9RADIO	66776
IFEOF	64600	INAZIMADD	63446	INBUFFER	64410
INELEVADD	63447	INPUTAPEND	64636	INTAPE	63622
INTER	63413	INTERAZIM	72000	INTERCOM	63426
INTERDOPP	74000	INTERELEV	73000	INTERJUMP	64423
INTERLOCK	64426	INTERLOCKP	64433	INTERLCK	64730
INTERLCKSW	63460	INTERRANGE	76777	INTERRUPT	64677
INTJUMP	64704	JP	63614	JPC15EXT	64512
JPCRLF	64124	JPPRINTOVR	64201	JUSTEOP	63616
KCCTTOFC	64616	KMPERNM	63342	KYBRDLEVEL	63110
LCOP1	64371	LOOPLIMIT	64376	LOOPSTART	64367
LCCKP	64441	LONGITUDE	63320	L14A	63420
L14B	63425	L14C	63440	L14O	63443
L14PR1	63450	L14PR2	63460	L15A	10136
L15B	10140	L15C	10150	L19L	63470
L19M	63500	L19N	63504	L19Q	63524
L19Z	63535	L20A	64714	LIST1PR	63536
LIST4PR	63551	LIST5PR	63555	LIST6PR	63564
LIST7PR	63567	LISTAPES	63466	LISTCHANGE	10056
LSPERAU	63336	MOVEON	10107	MACHEOF	64611
MACHERR	64602	MACHERROR	64612	MACHFAULT	64471
MAINSWITCH	63334	MAYBERASE	10154	MCPFILLER	71000
MCPGM	63412	MILLSTNADD	63451	MINREG	63152
MSFREQ	63332	MSK1	63624	MSK321	63623
MYSERVD	64754	NOMORERASE	10031	NEWTAPE	63621
NEWTAPEPR	64755	NMPERAU	63340	NUMBERNEW	64072
PCLE	63324	PARITY	64513	PARITYMSG	64536
PERIODAZIM	63523	PERIODDEC	63525	PERIODELEV	63521
PERIODRA	63527	PLOTP	63436	PLANP	63434
PMSG	64550	PREVIOUSTM	63461	PRINT	64151
PRINTOVER	64177	PRINTBUFFC	64202	PRLOG	63423
PUTCOUNTER	64355	ROTATEAEBX	63507	ROTATERADN	63506
RCTATERCBX	63510	RA	63002	RAOFFSET	63514
RADOT	63007	RADARMODE	63312	RADCBXSCAN	63503
RADECOTIME	63531	RADIODEC	63541	RADIOMETER	63102
RADIDRA	63540	RADIUS	63006	RADIUSDOT	63011
RANGE	63052	RANGEOUT	70777	RANGEADD	63445
RANGEDOT	63062	RASCTNSCAN	63504	RDMTR	63430
RCXXX	63433	READTAPE	64402	RECORDSIZE	63112
RECAZIM	67000	RECELEV	70000	RECFILE	63212
RECRC	63415	RECRDSWTCH	63155	REDUNDANT	64710
RELEASESW	63156	REMIND	63601	REPLACE	10126
REPLY	64075	RETRY	64527	REWIND	63360
REWINDOLD	63350	REWINDCORR	63344	REWINDNEW	63354
REWINDR	63367	REWINDWHAT	63371	SAZIM	63055

..... SPURT OUTPUT NO. 211 .....

UPDATER HAFFORD•12•AUG•64

LABEL	LOC	LABEL	LOC	LABEL	LOC
SCELTIME	63134	SOEC	63005	SECONDS	63140
SELEV	63056	SETUP	64157	SIOERTIME	63012
SINCRIENT	63064	SINAZEL	63066	SKIP	63331
SKIPPED	10200	SRA	63004	SRADTIME	63136
STOREUNPAK	64373	STOREXRS	64130	STATCODE	64734
STATUS	64635	STATUSCODE	64451	SYNCTIMING	63542
SYSCOMREG1	63452	SYSCOMREG2	63453	SYSCOMREG3	63454
SYSCOMREG4	63455	SYSCOMREG5	63456	SYSCOMREG6	63457
SYSENTRIES	77600	SYSNAMES	77700	SYSTAT1	63313
SYSTAT2	63314	SYSTATD	63315	TAPEPARMSG	64551
TIMECORR	63107	TIMEMODE	63103	TIMEP	63435
TIMETOHOLD	63520	TRUERANGE	63063	TRUETIME	63132
TRYAGAIN	64530	TTYSTATUS	63111	TWOSECOOP	63017
TYPEERASE	10026	UB2LB3	64146	UB4LB5	64147
UB6	64150	UNIT21D	64601	UNITNO	64503
UNITNOINT	64446	UNPACK	64351	UNPACKCODE	64164
VELOFLIGHT	63335	VIZDEC1	63014	VIZDEC2	63016
VIZRA1	63013	VIZRA2	63015	WAIT1	64414
WAITPRINT	64176	WAKEUP	64765	WEOFNEW	63372
WEOFNEWR	63400	WFORD	63432	WFADD	63450
WFFREQ	63333	WRITE	64665	WRITEOUT	64675
WRITEEOF	64577	YEARMONTH	63147	YRTRAN	63327
ZRTRAN	63330				

END OF LISTING

..... SPURT OUTPUT NO. 212 .....

UPDATER HAFFORD*12*AUG*64

LABEL	LOC	LABEL	LOC	LABEL	LOC
BEGIN	10000	GETCHAR	10010	ERASURE	10017
HNDLCHAR	10020	TYPEERASE	10026	NOMORERASE	10031
ANOTHERW	10034	ANOTHERC	10035	FIRSTERASE	10043
LISTCHANGE	10056	CSLISTED	10073	CKNEXTOLD	10103
GCCOPY	10106	MOVEON	10107	FINDCHANGE	10123
REPLACE	10126	L15A	10136	L15B	10140
L15C	10150	MAYBERASE	10154	EOFOLD	10161
FINISHCORR	10174	SKIPPED	10200	BSKIP3	10201
DONECORR	10203	IO1CELCOR	63000	IO2CELCOR	63001
RA	63002	DEC	63003	SRA	63004
SDEC	63005	RADIUS	63006	RADOT	63007
DECDOT	63010	RADIUSDOT	63011	SIDERTIME	63012
VIZRA1	63013	VIZDEC1	63014	VIZRA2	63015
VIZDEC2	63016	TWOSECOOP	63017	IO1RADCOR	63050
IO2RADCOR	63051	RANGE	63052	AZIM	63053
ELEV	63054	SAZIM	63055	SELEV	63056
CRANGE	63057	CAZIM	63060	CELEV	63061
RANGEDOT	63062	TRUERANGE	63063	SINORIENT	63064
COSORIENT	63065	SINAZEL	63066	COSAZEL	63070
ACQAZIM	63071	ACQELEV	63075	FRAMESIZE	63101
RADIOMETER	63102	TIMEMODE	63103	FIRSTELEV	63104
ASTRORA	63105	ASTRODEC	63106	TIMECORR	63107
KYBRDLEVEL	63110	TTYSTATUS	63111	RECOROSIZE	63112
CELBODY	63113	IO1TIME	63130	IO2TIME	63131
TRUETIME	63132	CELTIME	63133	SCELTIME	63134
CONVERTIME	63135	SRADTIME	63136	HOURMINUTE	63137
SECONDS	63140	DSECONDS	63141	ACTUALTIME	63142
ESTSHIFTED	63143	GMTSHIFTED	63144	GMTMODU24	63145
BLASTOFF	63146	YEARMONTH	63147	DAY	63150
HCURREG	63151	MINREG	63152	FIRSTHRU	63153
DUMSECTTG	63154	RECROSWTCH	63155	RELEASESW	63156
IO1RECRD	63210	IO2RECRD	63211	RECFILE	63212
IO1SYSPAR	63310	IO2SYSPAR	63311	RADARMODE	63312
SYSTAT1	63313	SYSTAT2	63314	SYSTAT0	63315
DELTATEE	63316	FREQUENCY	63317	LONGITUDE	63320
GEODETLAT	63321	GEOCENLAT	63322	EQUATOR	63323
POLE	63324	AZIMOVER	63325	HEIGHT	63326
YRTRAN	63327	ZRTRAN	63330	SKIP	63331
MSFREQ	63332	WFFREQ	63333	MAINSWITCH	63334
VELOFLIGHT	63335	LSPERAU	63336	FLATTENING	63337
NMPERAU	63340	AUPEREQUAT	63341	KMPERNM	63342
REWINDCORR	63344	REWINDOLD	63350	EXPNAME	63350
REWINDNEW	63354	REWIND	63360	REWINDR	63367
REWINDWHAT	63371	WEOFNEW	63372	WEOFNEWR	63400
COPYOUT	63403	IO1ENTPNT	63410	IO2ENTPNT	63411
MCPGM	63412	INTER	63413	COCON	63414
COPY	63415	RECRD	63415	AOSCN	63416
AESCN	63417	CORCT	63420	L14A	63420
DYDMP	63421	CHCOR	63422	PRLOG	63423
CELCOMPGM	63424	DATANALYZE	63425	L14B	63425
INTERCOM	63426	ACQUI	63427	ROMTR	63430

..... SPURT OUTPUT NO. 212 .....

UPDATER HAFFORD*12*AUG*64

LABEL	LOC	LABEL	LOC	LABEL	LOC
CHPAR	63431	WFORD	63432	ROXXX	63433
PLANP	63434	TIMEP	63435	PLOTP	63436
IDIRADIO	63440	L14C	63440	IO2RADIO	63441
AZIMADD	63442	ELEVADD	63443	L14D	63443
DOPPADD	63444	RANGEADD	63445	INAZIMADD	63446
INELEVADD	63447	WFADD	63450	L14PR1	63450
MILLSTNADD	63451	SYSCOMREG1	63452	SYSCOMREG2	63453
SYSCOMREG3	63454	SYSCOMREG4	63455	SYSCOMREG5	63456
SYSCOMREG6	63457	L14PR2	63460	INTERLCKSW	63460
PREVIOUSTM	63461	BODYSIZE	63462	LISTAPES	63466
L19L	63470	AZELBXSCAN	63500	L19M	63500
AZMTHSCAN	63501	ELVTNSCAN	63502	RADCBXSCAN	63503
RASCTNSCAN	63504	L19N	63504	DECLINSCAN	63505
ROTATERADN	63506	ROTATEAEBX	63507	ROTATEROBX	63510
HOLDNOHOLD	63511	AZIMOFFSET	63512	ELEVOFFSET	63513
RADFFSET	63514	DECOFFSET	63515	CRSSOFFSET	63516
ALNGOFFSET	63517	TIMETOHOLD	63520	PERIODELEV	63521
ARCOFELEV	63522	PERIODAZIM	63523	ARCOFAZIM	63524
L19Q	63524	PERIODDEC	63525	ARCOFDEC	63526
PERIODRA	63527	ARCOFRA	63530	RADECOTIME	63531
AZELOTIME	63532	L19Z	63535	LIST1PR	63536
RADIORA	63540	RADIODEC	63541	SYNCTIMING	63542
LIST4PR	63551	LIST5PR	63555	LIST6PR	63564
LIST7PR	63567	ASKERASE	63573	REMINO	63601
BLANK	63613	JP	63614	FULL	63615
JUSTEOP	63616	AULTAPE	63617	CORRECTAPE	63620
NEWTAPE	63621	INTAPE	63622	MSK321	63623
MSK1	63624	BUF1	63625	BUF2	63636
CHANGELIST	63726	IO3RADIO	63776	IO4RADIO	63777
AZIMOUT	64000	NUMBERNEW	64072	AULTNAME	64073
BCWREPLY	64074	REPLY	64075	ERASELIST	64076
I1	64111	ENDOF	64112	CRLFRT	64114
CRLF	64122	BCWCRLF	64123	JPCRLF	64124
CRLFCODE	64125	STOREXRS	64130	ENTERXRS	64137
UB2LB3	64146	UB4LB5	64147	UB6	64150
PRINT	64151	SETUP	64157	UNPACKCODE	64164
CHGADR	64172	WAITPRINT	64176	PRINTOVER	64177
JPPRINTOVR	64201	PRINTBUFFC	64202	BUFFERPRNT	64203
UNPACK	64351	PUTCOUNTER	64355	LOOPSTART	64367
GETPACK	64370	LOOP1	64371	STOREUNPAK	64373
LOOPLIMIT	64376	COUNTER	64401	READTAPE	64402
INBUFFER	64410	WAIT1	64414	C15EXTINT	64415
INTERJUMP	64423	BACK	64424	INTERLOCK	64426
INTERLOCKP	64433	LOCKP	64441	UNITNOINT	64446
STATUSCODE	64451	MACHFAULT	64471	UNITNO	64503
FDSTATCODE	64510	JPC15EXT	64512	PARITY	64513
RETRY	64527	TRYAGAIN	64530	PARITYMSG	64536
PMSG	64550	TAPEPARMSG	64551	FDTAPEPAR	64564
WRITEEOF	64577	IFEOF	64600	UNIT210	64601
MACHERR	64602	MACHEOF	64611	MACHERROR	64612
KOCTTOFD	64616	DUMMY	64632	EXCESS60	64634

..... SPURT OUTPUT NO. 212 .....

UPDATER HAFFORD*12*AUG*64

LABEL	LOC	LABEL	LOC	LABEL	LOC
STATUS	64635	INPUTAPEND	64636	ENDOFTAPM	64650
ENDTAPEM	64657	WRITE	64665	FOREWIND	64673
WRITEOUT	64675	HERE	64676	INTERRUPT	64677
INTJUMP	64704	BADMCH	64705	REDUNDANT	64710
L20A	64714	ENOTAPE	64721	INTERLCK	64730
CHANNEL	64733	STATCODE	64734	MYSERVO	64754
NEWTAPEPR	64755	WAKEUP	64765	IO5RADIO	64776
ID6RADIO	64777	ENTRANCE	64777	ELEVOUT	65000
A$$$$$1111	65001	A$$$$$1112	65002	A$$$$$1113	65003
A$$$$$1114	65004	A$$$$$1115	65005	A$$$$$1116	65006
ID7RADIO	65776	IO8RADIO	65777	DOPPOUT	66000
ID9RADIO	66776	IO10RADIO	66777	RECAZIM	67000
ID11RADIO	67776	ID12RADIO	67777	RECELEV	70000
ID13RADIO	70775	ID14RADIO	70776	RANGEOUT	70777
MCPFILLER	71000	ID15RADIO	71776	IO16RADIO	71777
INTERAZIM	72000	ID17RADIO	72776	ID18RADIO	72777
INTERELEV	73000	ID19RADIO	73776	IO20RADIO	73777
INTERDOPP	74000	ID21RADIO	74776	ID22RADIO	74777
AZIMIN	75000	ID23RADIO	75776	IO24RADIO	75777
ELEVIN	76000	ID25RADIO	76775	IO26RADIO	76776
INTERRANGE	76777	ID1SYSENT	77576	IO2SYSENT	77577
SYSENTRIES	77600	ID1SYSNAM	77676	ID2SYSNAM	77677
SYSNAMES	77700				

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13. ABSTRACT

A set of eight non-real-time service programs was written in support of the Haystack Pointing System to facilitate system maintenance and updating. Peripheral functions afforded by this set of programs include: (1) format conversion and remote printing facility of the SPURT assembler printer outputs 210, 211 and 212; (2) magnetic tape dumping; (3) "effective" punched card input to SPURT assembler; (4) CalComp plotting of system output; (5) punched card equivalents of Common Storage Allocation Tape; (6) automatic program loading with bootstrap tape generation facilities; (7) magnetic tape duplication; and (8) automatic updating of system tapes.

14. KEY WORDS

Haystack Pointing System	SPURT assembler	CalComp
magnetic tape	BCD tape	Fortran
Fieldata	Univac-490	Flexowriter